WETLAND CONSERVATION AND PROTECTION STRATEGY

CITY OF JACKSONVILLE

1984

THE HONORABLE JAKE M. GODBOLD
MAYOR

W. RAY NEWTON
DIRECTOR OF PLANNING

ACKNOWLEDGEMENTS

Financial assistance was provided by the Florida Department of Environmental Regulations and by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Coastal Zone Management/National Oceanic Atmospheric Administration.

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INTRODUCTION

This wetland protection study has been designed with the idea of implementing the major recommendations of the 2005 Comprehensive Plan for Jacksonville regarding wetland protection and land use practices related to wetlands.

The original scope of the study suggests the use of a wetland conservation district as the tool to be used for local protection design. After working with the study guidelines, researching background information, dealing with other municipalities and testing the local political climate, it was determined that limiting wetland protection to conservation zoning was, in effect, limiting the protection effort in Jacksonville to a very narrow scope.

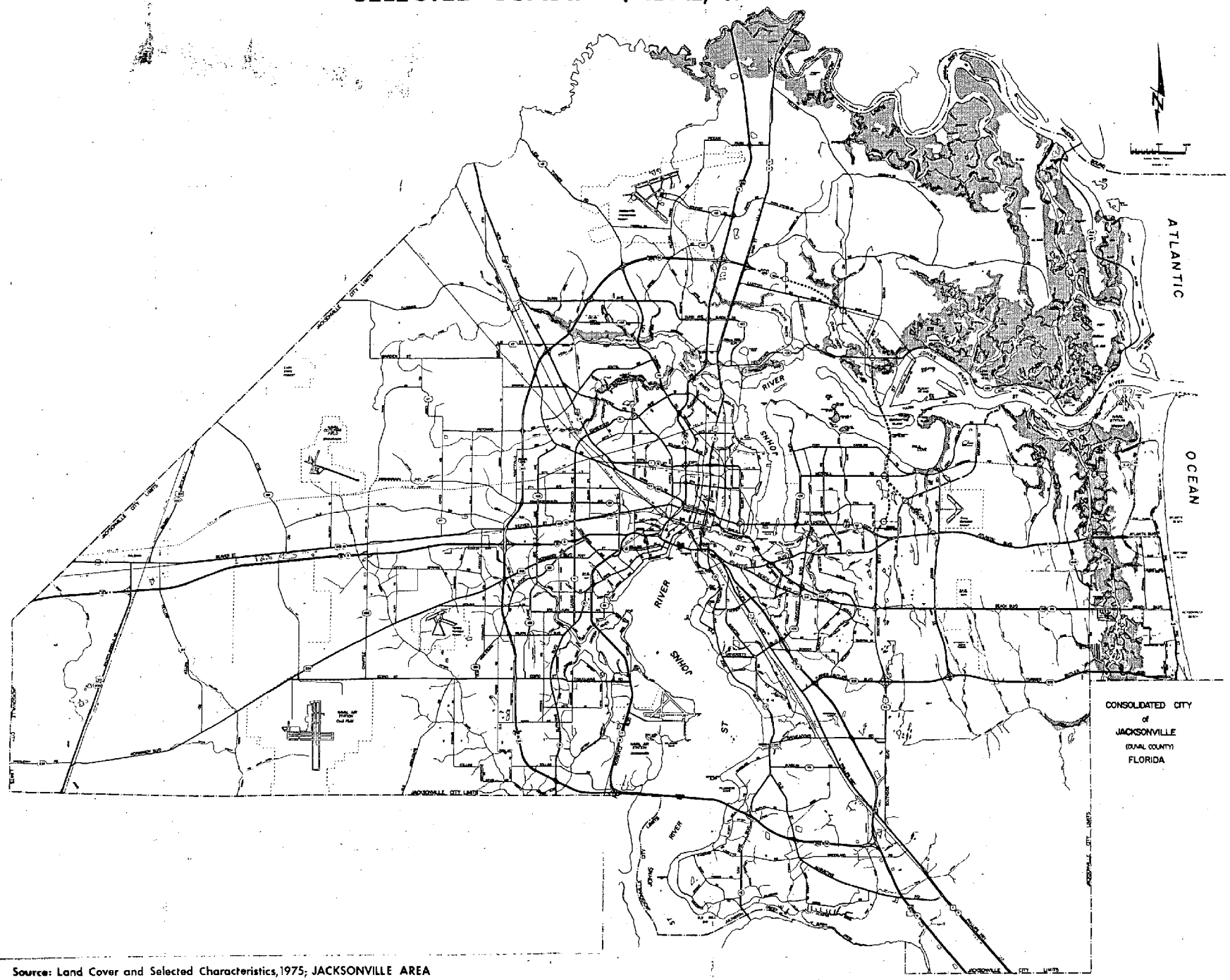
There are numerous alternatives for wetland protection that may well provide the protection needed in this area. Using and combining different alternatives for protection, rather than narrowing or limiting alternatives to one tool for protection, provides for a more flexible plan.

The approach taken in this study, is an eclectic one. The idea being to use the best available tools and techniques in designing a protection strategy, thereby making available alternatives regarding protection techniques.

The object is to protect local wetlands first and foremost. This study will provide several available alternatives using the basic recommendations from the 2005 Comprehensive Plan to achieve this goal.

DESCRIPTION OF FRESHWATER WETLANDS

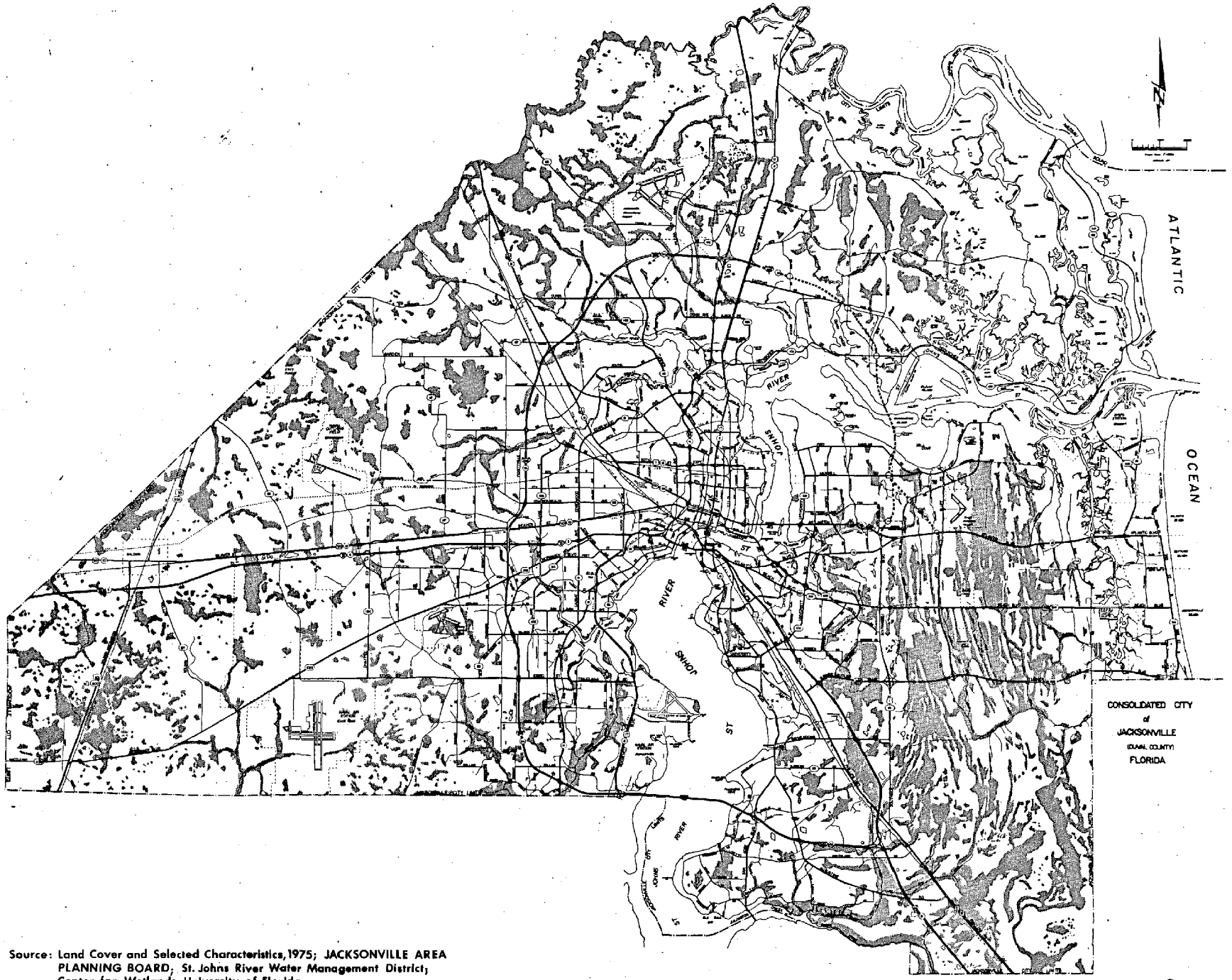
SELECTED COASTAL (TIDAL) MARSHES



Source: Land Cover and Selected Characteristics, 1975; JACKSONVILLE AREA PLANNING BOARD; St. Johns River Water Management District; Center for Wetlands, University of Florida

MAP 1

SELECTED FRESHWATER MARSHES & SWAMPS



Source: Land Cover and Selected Characteristics, 1975; JACKSONVILLE AREA PLANNING BOARD; St. Johns River Water Management District; Center for Wetlands, University of Florida

MAP 2

DESCRIPTION OF FRESHWATER WETLANDS

DESCRIPTION OF FRESHWATER WETLANDS

The discussion on freshwater wetlands in the Jacksonville area focuses on a number of locally dominant wetland types. The 2005 Plan focuses on these locally dominant natural systems: hydric hammock/swamp hammock, mixed hardwood swamp, riverine cypress/ cypress domes and ponds, bayhead and bogs, wet prairies and fresh water marshes. These wetland types are the focus of the biological description of wetlands that follows.

Hydric Hammocks/Swamp Hammock

Areas dominated by broad-leaved (mixed deciduous and evergreen) trees growing on soils that are poorly drained, but not subject to seasonal or periodic flooding, are considered hydric or low hammocks. Such hammocks are generally restricted to areas between the river swamp and the edge of the flatwoods. Hydric hammocks often occupy soils that are nearly saturated with moisture due to seepage of groundwater from higher areas. Topography is low and nearly level. These hammocks are not flooded for as long a period of time as are associated mixed hardwood swamps. The mixed hardwood swamp community is found within depressional areas of the hydric hammock.

Cabbage palm hammocks are included in this category because of hydroperiod and soil similarities. This community occurs on nearly level land. Water movement is very gradual to and through the natural drainageways, swamps, ponds and marshes associated with this community. During the rainy season, usually June through September, the water table is on or near the soil surface. The natural vegetation of cabbage palm hammocks is typically scattered pine and cabbage palm with an understory of palmetto and grasses.

Numerous soil types occur within hydric hammocks. The soils are most often nearly level, poorly to somewhat poorly drained and coarse textured to fine textured in the subsoil. Some parts of the subsoil are calcareous or neutral to moderately alkaline. The surface and subsurface layers are coarse textured. The soil is rich in organic matter and consequently has greater water-holding capacity than the soil of the xeric hammocks. Soils receive, in addition to direct rainfall, seepage and runoff from higher areas and have a very high water table.

This community supports a luxuriant growth of vegetation with a diversity of species. Although supporting plants that are found in both drier and wetter sites, this community has definite flora characteristics. Slight differences in plant composition occur depending upon water relationships. The slightly wetter sites contain a higher percentage of grasses and herbaceous plants. Although these differences are recognized, they are not significant enough to delineate as separate communities. Plants that characterize this community are:

Trees: Cabbage palm, Sabal palmetto; Popash, Fraxinus caroliniana; Tulip-poplar, Liriodendron tulipifera; Laurel oak, Quercus laurifolia; Live oak, Quercus virginiana; Red bay, Persea borbonia; Red cedar, Juniperus siliciola; Red maple, Acer rubrum; Sweetbay, Magnolia virginiana; Sweetgum, Liquidambar styraciflua; Water oak, Quercus nigra; Southern Magnolia, Magnolia grandiflora; Slash pine, Pinus elliotii; Blue beech, Carpinus caroliniana.

Mixed Hardwood Swamp

Extensive ar ; of this community type are located in the southeast secto: .f the county. Many are subject to current developmental pressure.

The mixed hardwood swamp community borders rivers and basins that are either submerged or saturated part of the year. It is dominated by deciduous hardwood trees and is found in strands along many drainageways and water-courses and areas influenced by seasonal flooding. The river swamp is subject to periodic fluctuations in water level as a result of seasonal rainfall patterns. Although these mixed hardwood swamps are characterized by a preponderance of deciduous tree species, they are generally not dominated by any one species. Such hardwood swamps are variable, with species types dependent upon the size of the waterway, its flow rate, water quality and silt-turbidity characteristics. Periodic flooding is essential to maintain this ecosystem and is the dominant factor for providing needed nutrients. If the system is drained or flooded for an extended length of time, a new community will result. Water level fluctuation of the system within normal yearly extremes is about 2.5 ft., but can be as much as 5.0 ft.

Hardwood swamp areas are of great value for maintaining good water quality and quantity and for wildlife and wilderness values. Water quality is enhanced through the actions of sedimentation and uptake of nutrients by vegetation. During flood times, when waters reach their highest elevations the swamp fringe of lakes and rivers help to reduce suspended nutrients and organic matter and slow water flows due to the friction of many trunks, stems and roots. As waters recede to dry season elevations, much nutrients and organic matter are effectively "trapped" behind the natural levee between the swamp fringe and the open water.

Water plays an important part in this community. If the water cycle is maintained, the community will tolerate disturbance, but if the water table is lowered or periodic water is not available, the system will change. The community is highly endangered due to its sensitivity to changes in the water cycle. Practices such as improper channelization, drainage and impoundment are especially damaging. Mixed hardwood swamp forests are natural storage areas for flood water. They slow the flow of water, improve water quality and gradually feed water to the rivers. These areas also assimilate inorganic and organic waste and reduce

pollution levels. Oxygen diffusion is great in the swamp forest because of the large air-to-water surface area. The slow movement of the rivers and obstructions also help with the diffusion. Downstream systems, including estuaries, receive energy through detritus from this system.

Soils associated with this community are nearly level, very poorly drained, dark colored and have coarse-to-medium textured surfaces underlain by finer textured material or are organic. The mixed hardwood system, unlike the bayhead, produces little or no peat.

The transition from river swamp to hydric hammock is often broad and ill defined where the topographic changes are very gradual. Rather extensive areas intermediate between the two associations occur where the periodic flooding is of brief duration.

Plants of the mixed hardwood swamp include:

Trees: Bald cypress, Taxodium distichum; swamp black gum, Gleditsia aquatica; water ash, Fraxinus caroliniana; red maple, Acer rubrum; water hickory, Carya aquatica; cabbage palm, Sabal palmetto; sweet gum, Liquidambar styraciflua; Florida Elm, Ulmus Floridana.

Shrubs: Buttonbush, Cephalanthus occidentalis; willow, Salix caroliniana; bluestem palmetto, Sabal minor; waxmyrtle, Myrica cerifera.

Vines: Mikania, Mikania scandens; pepper vine, Ampelopsis arborea; poison ivy, Toxicodendron radicans.

Grasses and Grasslikes: Sawgrass, Cladium jamaicensis; marsh grass, Spartina bakeri.

Herbaceous: Royal fern, Osmunda regalis; Cinnamon fern, O. cinnamomea.

The various species of hardwood vegetation provide good food and cover for these wildlife species.

Riverine Cypress/Cypress Domes/Ponds

Cypress communities found in Duval County are found predominately in the northwest sector and along the St. Johns River.

The riverine cypress system occupies deep freshwater habitats which are semipermanently or regularly inundated. It occurs along sloughs and drainageways and often takes the form of a strand: a diffuse forested channel carrying gently flowing water. The community is dominated by bald cypress (Taxodium distichum). The largest cypress trees generally occupy the zone most often flooded; the trees become progressively smaller toward the less frequently flooded upland. This community may consist exclusively of the bald cypress, with no ground cover, understory or associated species except an abundance of epiphytes. Cypress communities occur on a variety of soil types. Vigorous bald cypress growth occurs on deep muck or brown peat, clays or fine sands.

Cypress Domes/Ponds

This wetland type is found predominately in the western sector of the county.

The cypress dome is a still-water wetland forest occurring in areas where water is present for much of the year. This community generally occurs in depressions in upland areas of little topographic relief such as the pine flatwoods. It seldom occurs in the floodplains. The dominant specie is pond cypress (Taxodium ascendens) with swamp black gum (Nyssa sylvatica var. biflora) also often found. The largest cypress trees generally occupy the zone flooded most often. Trees become progressively smaller with distance from this zone. In shallower areas around the edges, competition with other species occurs, the likelihood of fire is greater and there are a large number of seedlings.

Smaller cypress ponds tend to be more regular in shape; larger ponds tend to be asymmetrical and may occur in strands.

This community is poorly drained and water is at or above ground level a good portion of the year. Cypress domes provide water storage areas by holding excess water and slowly releasing it into the water table. Water quality

is enhanced by the community, which functions as a waste treatment plan by absorbing nutrients from the water. Fire is a stress factor, primarily on the drier portions, but water is important in all areas. Water enters the cypress dome directly from rainfall or runoff. The water level is highest in summer and peak productivity occurs in early Spring. Standing water will result in slow tree growth especially if it occurs during the growing season. Natural regeneration of cypress requires fluctuation of the water. Flooding during the dry season will prevent the cypress trees from reproducing. Water must be available to germinate the seeds because it provides natural stratification. However, when the seedling starts to grow, its top must be maintained above water. Both drastic changes in the water level and a stabilized water level may change the plant community. If the water level is lowered, the cypress-gum swamp can succeed to bay forest.

Soils commonly associated with this community are nearly level or depressional, poorly drained and have loamy subsoils and sandy surfaces. Taxodium ascendens is found in acidic soils.

Plants that characterize this community are:

Trees: Pond cypress, Taxodium ascendens; Swamp black gum, Nyssa sylvatica var. biflora.

Shrubs: Common buttonbush, Cephalanthus occidentalis; Southern wax myrtle, Myrica cerifera.

Vines: Laurel greenbrier, Smilax laurifolia.

Grasses and Grasslikes: Maidencane, Panicum hemitomon; Sawgrass, Cladium jamaicense.

Herbaceous: Cinnamon fern, Osmunda cinnamomea; Fall-flowering ixia, Nemastylis floridana; Pickerel weed, Pontederia cordata; Royal fern, Osmunda regalis; Spanish moss, Tillandsia usneoides; Stiff-leafed wild pine, Tillandsia utriculata; Sphagnum moss, Sphagnum spp.

This community is very important for wildlife refuge areas. It is well suited for waterfowl and wading birds and aquatic animals may be found in large numbers. The permanent residents of cypress domes are relatively few, but much of the wildlife of the flatwoods is dependent on these ponds for breeding purposes.

Bayheads and Bogs

The term "bayhead" designates an association dominated by broad-leaved evergreen trees that grow in very acid saturated soils that are subject to period flooding. Bayheads characteristically occur in depressions in the flatwoods or as marginal growths about flatwoods ponds that are not subject to excessive variations in water level. This community occurs on nearly level to gently sloping land or hillsides or in depressed areas. The shrubs have many stems and thick foliage and often appear impenetrable. It is common to find this type associated with swamps bordering streams. They are peat-forming communities.

Bayheads are usually maintained by seepage from higher land. Drainage of the bog or immediate upslope will strongly modify or destroy these environments. Seepage water keeps them almost constantly wet and they protect adjoining swamps from fire during dry periods. They act as small reservoirs by receiving seepage water and metering it out in a small but steady supply. Where a wide fluctuation of water level occurs, fire becomes a limiting factor by killing the bayhead type of vegetation during periods of low water. It is suspected that only small amounts of water are evaported or transpired from this community relative to other wetlands. During dry periods, lightning may start fires that will consume peat to the depth of the water table.

Soils commonly associated with this community are nearly level to gently sloping, acid, somewhat poorly to very poorly drained.

Three variants of bog occur in northeast Florida: the herb bog, the shrub bog and the bog swamp. For the purpose of this mapping program, the variant bog swamp is considered to be equivalent to the bayhead.

Bogs are so named because of their characteristic of developing peat and organic soils. From lowland and upland, they occur in the sequence: bog swamp, shrub bog, herb bog. The herb bog, often called pitcher plant bog, is characterized by grasses, sedges, flowering and insect-eating plants. Trees are either sparse or absent. Water frequently stands at the surface or gushes from the matted surface upon pressure. The high water table and

frequent fire prevent succession to shrub bog. Dry periods occur every 3-8 years. It is during such drought periods that the surface becomes quite arid, meager peat accumulations oxidize and fire may occur.

The shrub bog is characterized by dense masses of evergreen shrub vegetation, seldom exceeding 25 feet in height. Shrubs include: titi (Cyrilla spp.), black titi (Cliftonia monophylla), rusty black haw (Lyonia ferruginea), fetterbush (Lyonia lucida), large gallberry (Ilex coriacea), cinnamon clethra (Clethra alnifolia, Clethra spp.), doghobble (Leucothoe spp.) red choke berry (Aronia arbutifolia), along with assorted blueberries, azaleas and sometimes saw palmetto (Serenoa repens). Some shrub bogs may have little diversity and be dominated by a single species, most frequently Black titi. The soil is nearly always moist, with the water table at or near the surface. Soil moisture during non-storm periods is provided by groundwater seepage, usually from higher areas. During very dry periods, lightning may start fires which will consume peat to the depth of the water table.

Willow heads occur sporadically along drainageways with periodically rapidly flowing water. In Duval County, manmade drainage canals and ditches are frequently lined with almost pure stands of Common willow (Salix nigra). Willow heads are often found bordering hydric hammocks and bayheads in disturbed areas throughout the county.

Wet Prairie

In Duval County, an extensive area of this community type is located just south of Mill Cove.

The wet prairie, sometimes called freshwater meadow, appears as an open expanse of grasses, sedges, rushes and herbs in varying proportions and may also contain scattered shrubs and small trees. The general appearance of the prairie is that of an overgrown field. The wet prairie occurs in areas of low topographic relief and receives water from rainfall and from runoff from higher, nearby areas. It is regularly flooded by fresh water from 0.5 to 2 feet and remains wet to moist throughout much of the year.

Soils are commonly mineral and organic alluvial and are nearly level and poorly drained with coarse-textured surfaces underlain by clay or sand. There is often a thick

organic layer that has high water-holding capacity. The soil helps slow down water flows and, thereby, increases water quantity and improves water quality. Fire and artificial water level fluctuations are the major factors affecting these areas. Variations in the natural sequence of either event will change the slough's diversity and productivity. With the exclusion of fire or permanent water level reduction, the plant succession will be to a wooded community.

Grasses are the most common plants found in sloughs. Sedges and rushes also occur with scattered shrubs in some locations. Plants that characterize this community are:

Shrubs: St. John's wort, Hypericum fasciculatum; Primrose willow, Ludwigia spp.; Elderberry, Sambucus simpsohii.

Grasses and Grasslikes: Blue maidencane, Amphicarpum muhlenbergianum; Bluejoint panicum, Panicum tenerum; Forked panicum, Panicum dichotomum; Low panicum, Panicum, spp.; Sand cordgrass, Spartina bakeri; Beak rushes, Rhynchospora; Softrush, Juncus effusus; Sloughgrass, Scleria spp.; spike rush (Eleocharis cellulosa); sedge (Cyperus spp.).

Herbaceous: Pickerelweek, Pontederia cordata; Sundew, Drosera spp.; Marsh pink, Sabatia spp.; Meadowbeauty, Rhexia spp.; Milkwort, Polygala spp.; Yellow-eyed grass, Xyris spp.; spiderlily (Hymenocallis spp.); swamplily (Crinum americanum).

This community is productive in regards to food for bobwhite quail, deer and wading birds. Its low growing vegetative growth provides poor cover for most wildlife species, but this is often offset by the "edge effect" of this community when it is located with flatwoods and hammocks.

Freshwater Marsh

The freshwater marsh is a herbaceous community, adapted to prolonged periods of flooding. Many freshwater marshes are dominated by one or several species. The freshwater marsh is usually considered the union of two subcategories of marshes: the shallow marsh and the deep marsh.

Deep marshes are wetlands that are usually dominated by free-floating or rooted aquatic herbs and are usually permanently flooded by fresh water and are found along rivers, lakes and water courses.

The deep marshes and ponds serve as a filter system for rivers and lakes. This protects the rivers and lakes from eutrophication and provides the marsh with nutrients that are used in the vegetative growth. Marshes will retain water during drought and large marshes also help slow down water flows at flood times.

Soils commonly associated with this community are nearly level and very poorly drained with coarse-textured or organic surfaces underlain by clay or sand. The soil is covered with 3-6 feet of water during the growing season. No Sphagnum is present. Instead, substratum is soft muck, rich in decaying organic matter mixed with mineral soil and often silty from inland (river) deposits.

Plants characterizing this community include:

Grasses and Grasslikes: Cutgrass, Laersia hexandra; Watergrass, Echinochloa sp.; Maidencane, Panicum, hemitomon; Cattail, Typha sp.; Bulrushes, Scirpus sp.; Rush, Juncus sp.

Rooted Aquatic Herbs: Tape grass, Vallisneria americana; Waterlilies, Nymphaea odorata; Golden Club, Orontium aquaticum; Spatterdock, Nuphar luteum; Coontail, Caratophyllum demersum; Hydrilla, Hydrilla verticullata; Water milfoil, Myriophyllum sp.

Free-Floating Herbs: Water hyacinth, Eichhornia crassipes; water-lettuce, Pistia stratioides; Frog's-bit, Limnobium spongia; Duckweeds, Lemma sp. and Spirodela sp.

Deep marshes and ponds provide excellent habitats for many wildlife species. Numerous birds and waterfowl use this community for wintering or year-round.

Shallow Marsh

The shallow freshwater marsh is a herbaceous community adapted to prolonged periods of flooding. Many shallow marshes are dominated by one or several species. The shallow marsh appears as an open expanse of grasses, sedges

and rushes and other herbaceous plants in an area where the soil is usually saturated or covered with surface water for two or more months during the year.

The freshwater marshes serve as filter systems for rivers and lakes. This protects the rivers and lakes from eutrophication and provides the marsh with nutrients that are used in the vegetative growth. Marshes will retain water during drought. Large marshes also help slow down water flows at flood times. Fire and water level fluctuation are the major factors affecting these wetland areas. Variations in the water patterns in a marsh will change the plant diversity and productivity. Marsh systems will eventually move to a woody community with exclusion of fire or permanent and lower water level changes.

Soils commonly associated with this community are nearly level and very poorly drained with coarse-textured or organic surfaces underlain by clay or sand. The soil is usually saturated during the growing season and is often covered with six inches or more of water. No Sphagnum is present. Substratum is soft muck, rich in decaying organic matter mixed with mineral soil and often silty from inland (river) deposits.

Hydrologic Regimes

Drainage

Most of the county is drained by the St. Johns River, which flows north through the county then turns east near Trout River and flows 23 miles to the Atlantic Ocean. The six major tributaries of the St. Johns River within Duval County are from south to north: Julington Creek, Ortega River, Arlington River, Trout River, Broward River and Dunn Creek. All of these tributaries are black water streams due to extensive swamp drainage. Drainage is controlled primarily by the orientation of the ancient marine terraces. These terraces run at angles to an old beach ridge that is parallel to the ancient shoreline and forms the eastern boundary of each terrace (Fairchild, 1972).

The extreme northeastern and northwestern sections of the county are very flat with 0-2 percent slope. They contain large areas of freshwater and tidal wetlands. Drainage is very slow and drainage divides are difficult to define.

The swamps of the extreme northwestern section are drained by Deep Creek and Brandy Branch which are part of the St. Marys River basin. Most swamps in the southwestern section are drained by the Yellow Water Creek system which is part of the Black Creek drainage. Black Creek flows into the St. Johns River. The extreme northern part of the county drains into the Nassau River. This area contains extensive tidal marshes.

Soil Types

The soil types characteristic of freshwater wetland communities are very poorly drained with slightly acid to very acid pH. Four major soil types have been identified and described for the freshwater hardwood and cypress swamps in Duval County. The following descriptions have been modified from the U.S.D.A. Soil Conservation Service, 1978. "Soil Survey of City of Jacksonville, Duval County, Florida."

Maurepas Muck

This soil is organic in origin and occurs in drainageways and depressions in pine flatwoods. The slope is 0 to .1 percent. The water table is high (less than 10 inches) or the soil is flooded from 6 to 12 months a year. This soil is associated with cypress swamps.

Pamlico Muck

This soil is organic in origin and occurs on slopes that range from 0 to 2 percent. The surface is black, decomposed muck. The soil is typically covered with water for more than 6 months a year. This soil type is characteristic of bayheads and bogs.

Stockade

This soil type consists of a fine sandy loam. The slopes range from 0 to 2 percent. The water table is typically less than 10 inches below the surface and the soil may be flooded for more than six months of the year. It is associated with mixed hardwood swamps and hydric hammocks.

Wesconnett

This is an inorganic soil composed of fine sand. The water table ranges from 0 to 10 inches. The soil may be flooded from 6 to 12 months during the wetter years. Slopes range from 0 to 2 percent. This soil may be found in cypress ponds, hardwood swamps and hydric hammocks.

Functions of Freshwater Wetlands

Freshwater wetlands are vital to the coastal watershed drainage system. They function as natural sites for stormwater retention and controlled release. The connected coastal water ecosystems have evolved in balance with the existing freshwater wetlands. This balance involves regulation of the quality, volume and rate of flow of upland runoff and groundwater discharge. The maintainance of this balance is essential for the sports and commercial fisheries currently supported by the St. Johns and Nassau Rivers estuaries. Alteration of freshwater wetlands which would

either increase or decrease freshwater input to the connected estuaries would be detrimental to large numbers of estuarine species.

The freshwater wetlands in Duval County also serve as bird and wildlife breeding and feeding areas. Osprey frequently nest in tall cypress trees. Migrating ducks and geese feed in the freshwater marshes. Many species, including Herons, Wrens, Bitterns, Rails, Bald Eagles, Limpkins, Red Shouldered Hawks and Egrets feed and nest in freshwater wetlands. Bobcat, black bear and deer are found within these habitats. The freshwater swamps and marshes within Duval County function as important wildlife refuges.

Recharge to ground water aquifers is another important function of freshwater wetlands. In Duval County, the swamps at the head of the Yellow Water Creek basin are important recharge areas for the shallow aquifer. According to the U.S.G.S. (Fairchild, 1972), there may be as much as 11 to 13 inches of recharge per year in these wetlands. This area is very flat and swampy and rainfall stands for long periods of time. Although evapotranspiration is high, much of the standing water slowly seeps to the water table.

Existing Land Uses in Wetlands and Projected Rate of Development

Development is on the upswing in the Jacksonville area. Since there are large areas of wetlands scattered throughout the county (approximately 10% of Duval County is wetlands), it is becoming more apparent that many of these wetlands are feeling the pressure of development.

Forested wetlands make up a large portion of wetlands in the Jacksonville area. A major portion of these are located in the southeastern quadrant of the city. This section of the city is experiencing a tremendous building boom and, therefore, substantial pressure is being placed on wetlands in this area.

The City is attempting to discourage the use of wetlands, especially in areas of DER jurisdiction, as part of the buildable lot area in subdivision design. This is an attempt to avoid the loss of these wetlands while discouraging activity in areas that for various reasons are less than suitable for development.

There is also a large amount of development pressure on wetlands adjacent to major transportation routes. An example of this pressure is a proposal for a shopping center in the floodplains of a major river adjacent to I-295, major apartment complexes and planned unit developments adjacent to major drainage systems, creeks and swamps that are headwaters for local creeks.

Development pressure along transportation corridors such as J. Turner Butler and Baymeadows Road have in the past and continue to put pressure on wetlands. There is also a proposal for a new bridge crossing the intracoastal marshes and linking the Mayport area with Mt. Pleasant Road. There have also been tentative proposals for major road extensions through several sensitive wetland areas.

Development along the intracoastal waterway is putting a lot of stress and development pressure on the salt marshes in this area. This area is naturally scenic and the asthetics of the area and proximity to the coast are the major amenities that draw development to the area.

Development pressure on wetlands along the Duval-St. Johns County line is presently becoming more apparent. The Julington Creek area, part of which has recently been accepted as a CARL site, is an area of scenic wetlands and floodplains with areas of habitat for endangered and threatened species, as well as rare plant life. This area is presently feeling the first pains of intense development pressure.

The southwestern quadrant of the city is an area speckled with cypress domes, swamp hammock and other wetlands. This area has not experienced the major development pressure of other sections of the city and is projected to remain an area of low density development. In recent years, the only major pressure for development has occurred along major transportation routes leading into the city from neighboring Clay County, an area experiencing very rapid growth.

The northwestern part of the city has, like the southwest quadrant, not been part of the development boom to date. There has been some industrial expansion in this area, but nothing to the extent of other parts of the city.

The northeastern quadrant of Jacksonville probably presents the most challenging future problems in regard to wetland protection. This area contains various freshwater

marshes and swamps, riverine cypress strands and other assorted freshwater wetlands as well as the largest estuarine marsh still in pristine condition on the east coast of Florida. The problems will soon arise when the linkup to I-295, State Road 9-A and the Dames Point Bridge complete the I-295 loop around Jacksonville. This will allow easier access into this once rather isolated area. With this addition, growth in this section of the city is expected to expand rapidly. This area has seen only isolated events of development in recent years and is projected for generally low density development in order to protect the expansive salt marshes located there.

The challenge for the city will be to have protection efforts in place to avoid rapid uncontrolled development in this area that could cause irreparable damage to the estuary and associated wetlands.

Development is rapidly encroaching on and responsible for the loss of wetlands in several sections of the city. A compromise must be reached that will allow development to continue at a reasonable place while preserving areas of selected wetlands and the functions they perform. The intention is to incorporate these areas into development design rather than removing or damaging them to where they can no longer function.

This will be a challenge the city will meet by incorporating wetlands into land use design, incorporating natural drainageways and flood plains into drainage and stormwater management systems. The City should incorporate wetlands where possible into the required retention system, limiting development in and adjacent to wetlands to an acceptable level, as well as trying to maintain many of these areas as open space.

EXISTING REGULATIONS AND PROTECTION EFFORTS

EXISTING REGULATIONS AND PROTECTION EFFORTS

There are Federal, State and City regulations and agencies that exert varying amounts of control over the activities that can be conducted under particular circumstances in wetland areas.

At the Federal level regulations and agencies, such as the Federal Clean Water Act and the Army Corps of Engineers that exert some control over wetland use.

At the State level there is the Florida Environmental Land and Water Management Act and the Department of Environmental Regulation (DER) that regulate and protect wetlands to some extent.

At the City level there are ordinances and City agencies, like the Flood Plain regulations and the Department of Public Works, that are part of the existing effort to protect surviving wetlands.

There are other related and interrelated regulations and ordinances at all governmental levels that are making an effort to protect the wetlands and their valuable natural functions.

Several examples of regulations currently in place in other states and cities, as well as other parts of Florida, are included in this discussion of current regulations and

protection efforts.

Federal Regulation and Protection Efforts

The following is a list of important federal policies in regard to wetlands regulations:

The Rivers and Harbors Act of 1899

This Act prohibited the unauthorized obstruction or alteration of any navigable water of the United States. Section 10 of this Act prohibits the excavation of material from, or the deposition of material into, any navigable water of the United States without a permit or other authorization from the United States Army Corps of Engineers. The Act also restricts the accomplishment of any other work that would affect the location, course, capacity, or condition of maintaining safe waterways for travel and commerce. Under this Act, the Corps has limited its jurisdiction to activity affecting the navigable capacity of waterways, reviewing permit applications on the basis of impact upon navigation (Federal Register, July 19, 1977).

The 1899 Act did not actually define navigable waters and the Corps was satisfied with a very narrow interpretation of navigable waters. However, case law became the primary means for determining whether activities in certain waters required authorization under the Act. The result was a collection of court decisions that defined navigable waters to include: (a) Waters that are navigable in fact where they are used or susceptible to being used in their ordinary condition as highways of commerce over which trade and travel are or may be conducted. (b) Waters that were used in the past as a highway or part of a highway of interstate or foreign commerce. (c) Waters that could be made suitable for such use in the future with reasonable improvements. These rulings all served to increase the scope of the Corps' authority under the 1899 Act, but the Corps has been satisfied with defining navigable waters as those waters that were navigable in their interpretation.

In the 1960's and 1970's the country witnessed an increased focus upon environmental issues. There was increased pressure placed upon the Corps to broaden their scope to include more protection of the environment. There were many people who pressured the Corps to include wetlands

in their review of dredge and fill permits. In 1968 the Corps published the following standard pursuant to its duties under the 1899 Act. "The decision as to whether a permit will be issued must rest on an evaluation of all relevant factors, including the effect of the proposed work on navigation, fish, wildlife, conservation, pollution, aesthetics, ecology and the public interest" (33 C.F.R.). The Corps expanded its scope of review for permitting and included other factors besides impact upon navigation. But still the Corps was only regulating water below the high water mark and construction in wetlands was still not regulated by the Corps.

Freshwater Pollution Control Act

In 1972, Congress passed the Fresh Water Pollution Control Act (FWPCA). This Act prohibited the discharge of pollutants into navigable waters without a permit and Section 404 of this Act regulated the discharge of dredge and fill material. Section 404 of the FWPCA establishes a permit program, which is administered by the Secretary of the Army acting through the Chief of Engineers, to regulate the discharge of dredged material and those pollutants that comprise fill material into the waters of the United States. Applications for Section 404 permits are evaluated by guidelines developed by the Administrator of the Environmental Protection Agency (EPA) in conjunction with the Secretary of the Army. The Chief of Engineers can make a decision to issue a permit that is inconsistent with those guidelines if required for navigation. Section 404(c) gives the Administrator, EPA, further authority, subject to certain procedures, to restrict or prohibit the discharge of any dredged or fill material that may cause an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas (Federal Register, July 19, 1977).

This Act defined "navigable waters" as all waters of the United States. The Corps, however, was unwilling to change its definition of "navigable waters" to enforce the 404 program and only changed its definition after being taken to court (N.R.D.C., V. Callaway). To comply with the court's order, the Corps redefined the term "navigable waters" to include not only traditional navigable waters, but also artificially created channels connected to navigable waters, tributaries to navigable waters up to their headwaters, non-navigable interstate waters up to their headwaters, intrastate waters up to their headwaters that are used for interstate commerce and wetlands adjacent

to such waters. Wetlands were defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands that are located above the mean high water mark, but are adjacent to interstate waters or their tributaries are also subject to Section 404 regulations. Headwaters were defined as the point on the stream above which the flow is normally less than 5 cubic feet per second.

1977 Clean Water Act

This Act was the first federal act to address itself to wetlands. In this Act. dredge, fill and discharge regulations included wetlands that are adjacent to United States waters. The terms "wetlands" and "adjacent" were then defined separately. The term "wetlands" was defined as those areas that are inundated or saturated by surfacewater or groundwater at a frequency and duration to support and that under normal conditions do support, a prevalance or vegetation typically adapted for life in saturated soil condition. The term "adjacent" was defined as bordering, continguous, or neighboring wetlands; wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands".

To regulate fill and dredge under the 404 Program, the Corps implemented a revised permit system. They developed two types of permits: a general or nationwide permit and individual permits. Activities that fall under the general permit are "permitted" and are not required to go through the application process. Activities authorized by general permits include:

a. seismic operations;

b. outfall structures and associated intakes where the outfall has been permitted under Section 402;

c. return water from upland dredge disposal if state certification under Section 401 has been provided;

d. discharges associated with surface coal mining activities authorized under the Surface Mining Control and Reclamation Act of 1977;

e. discharges that do not exceed 5 cubic yards for a

complete project; and

f. discharges undertaken or regulated in whole or part by another federal agency where the agency has determined that the discharge will not either individually or cumulatively have an adverse environmental effect and the Corps district office does not object (40 C.F.R.).

For all other dredge and fill operations individual permits are required. The standards used in the permit process were developed by both the EPA and the Corps. The twelve general policies for evaluating permit applications are:

a. public interest review;

b. effects on wetlands;

c. fish and wildlife;

d. water quality;

e. historic, scenic and recreational values;

f. effects on limits of the territorial seas;

g. interference with adjacent properties or water resource projects;

h. activities affecting coastal zones;

i. activities in marine sanctuaries;

j. other federal, state or local requirements;

k. safety of impounding structures; and

l. floodplains.

In using the wetlands review, the Corps begins with the presumption that wetlands are vital areas that constitute a productive and valuable public resource, the unnecessary alteration of which should be discouraged as contrary to public interest. The Corps identifies those wetlands considered to perform functions important to public interest as:

a. wetlands that serve important natural biological functions, including food chain production and

general habitat and nesting, spawning, rearing and resting sites for aquatic or land species;

b. wetlands set aside for study of the aquatic environment or as sanctuaries or refuges.

c. wetlands the destruction or alteration of which would detrimentally affect natural drainage characteristics, sedimentation patterns, salinity distribution, flushing characteristics, current patterns, or other environmental characteristics;

d. wetlands that are significant in shielding other areas from wave action, erosion or storm damage;

e. wetlands that serve as valuable storage areas for storm water and floodwaters;

f. wetlands that are prime natural recharge areas. Prime recharge areas are locations where surface-water and groundwater are directly interconnected; and

g. wetlands that through natural water filtration processes serve to purify water (Federal Register, July 19, 1977).

Under the wetlands review, the alteration or destruction of a wetland will be considered unnecessary if the benefits of the proposed projects do not outweigh the damage to the wetlands or if the proposed alteration is not necessary to realize the alledged benefits. This latter determination requires consideration of whether the proposed alternative is "primarily dependent" on being located in or in close proximity to the aquatic environment and whether feasible alternative sites are available.

The 1977 Act exempts the discharge of dredged or fill material in connection with certain minor activities from all permit requirements provided that the discharge is not incidental to an activity intended to convert an area of navigable waters to a new use that involves impairment of flow or circulation of waters. The exemption covers the discharge of the following dredged or fill material:

a. from normal farming, silviculture and ranching activities;

b. for the maintenance of currently serviceable structures;

c. for construction or maintenance of farm or stock ponds or irrigation ditches or the maintenance of drainage ditches;

d. for construction of temporary sedimentation basins on a construction site that does not involve a discharge to navigable waters;

e. for construction or maintenance of farm or forest roads or temporary roads for moving mining equipment; and

f. resulting from any activity covered by an approved state water quality management plan (Federal Register, July 1977).

Presidential Executive Order 11988, Floodplain Management

This executive order on floodplain management requires federal agencies to consider the effects of any action it may take in a floodplain and that their planning programs and budget request reflect considerations of flood hazards and floodplain management. When an agency proposes activities in a floodplain, the agency should consider alternatives to avoid adverse effects and incompatible development in the floodplains.

Designs should limit or minimize potential harm to floodplains when there is no alternative site. All new requests for authorization or funding should indicate if a proposed site will be located in a floodplain. This executive order requires all protective and floodproofing measures possible be used. It also requires where practicable, the elevations of structures rather than the use of fill.

Presidential Executive Order 11990, Protection of Wetlands

This executive order on wetland protection requires federal agencies, when dealing with federally owned lands, to minimize the destruction, loss and degradation of wetlands. It requires each federal agency, to the extent permitted by law, to avoid undertaking or providing assistance to activities located in wetlands unless there is no reasonable alternative. At this time, all measures

should be taken to minimize impacts on wetlands. All agencies requesting new authorization or new appropriations must indicate if the proposed activity will be located in wetlands and if the activity is in accord with this executive order. The federal government may apply restrictions to federally leased land containing wetlands, or withhold these areas from leasing totally. Agencies are required to consider factors relevant to a proposal's effect on the survival and quality of the wetlands.

Other Federal Agencies That Regulate Wetlands

Department of the Interior, Bureau of Outdoor Recreation, Land and Water Conservation Fund

Funds are made available on a matching basis (up to 50%) to aid state and local acquisition of recreation and open space areas. To qualify, a state must prepare a comprehensive outdoor recreation plan. The state establishes criteria for funding local projects; all 50 states participate in this program. Funds are allocated according to population. Fiscal 1977 appropriations were $17,516 million. Forty percent of these monies funded federal acquisition projects, the rest was allocated to state and local governments. States and localities have usually used the funds to acquire park and other recreation lands; however, funds have also been used to acquire wetlands, floodplains and other open areas.

Fish and Wildlife Service

Federal Aid to Wildlife Restoration

Funds derived from federal taxes on the sale of firearms, shells and cartridges are apportioned to states to cover up to 75% of the cost of projects for acquisition, restoration and maintenance of wildlife areas and research into problems of wildlife management.

More than $800 million in tax revenues have been disbursed under this program since 1937, with more than 75% spent on wildlife restoration. Revenues in 1975 totaled $63 million. By 1975 states had acquired more than 3.45 million acres under this program.

Endangered Species Program

This program identifies endangered species and their habitats and takes action to restore them as viable components of their ecosystem. Part of the protection program may involve land acquisition through funds appropriated under the Land and Water Conservation Act of 1965. Over $13 million in Land and Water Conservation Act funds were spent from 1969 to 1978 to acquire habitats beneficial to endangered species. Since the Endangered Species Act was passed in 1973, the Fish and Wildlife Service has taken action to list, delist, or reclassify about 3,440 plant and animal species.

Project funds and grants are available to state fish and wildlife agencies that have entered into a cooperative agreement concerning rare and endangered species with the Secretary of the Interior. Grants pay up to two-thirds of the costs to develop and implement programs to protect rare and endangered species. Grants are also available to purchase rare and endangered species' habitats.

Army Corps of Engineers/Section 404

The Army Corps of Engineers (COE) has traditionally permitted and regulated dredge and fill activities in navigable waters of the United States. Section 404 of the Federal Water Pollution Control Act amendments of 1972 extended the jurisdiction to not only include navigable waters, but artifically created channels and tributaries connected to navigable waters. This amended act also included dredge and fill operations in wetlands adjacent to navigable waters.

The COE was reluctant to take on this responsibility until they were forced to by court action (NRDC v. Calaway, 392 F. Supp. 85 D.D.C. 1975) and had to redefine their jurisdiction in relation to wetlands.

The Clean Water Act of 1977 retained Section 404 with certain amendments.

At present, there is evidence that Section 404 is targetted for dismantling or significant change under the present federal regulatory reform movement.

The COE has adopted revised regulations pertaining to Section 404. Presently, the COE is involved in a lawsuit by a Florida environmental group seeking to invalidate the July

22, 1982 regulation changes. The U. S. Congress is expected to consider several amendments to Section 404 in the near future.

There are several proposed administrative changes to Section 404. The first proposed change would be to the COE jurisdiction in dredge and fill permitting, no longer would adjacent wetlands be covered in Section 404. Basically, the definition would regress to what it was under the 1899 Rivers and Harbors Act.

The second change would be in the area of regulated activities. The Clean Water Act regulates the discharge of dredge and fill material. However, the determination of which specific activities are regulated has been subject interpretation.

The courts have been willing to approve a broad interpretation, while the COE has tried to maintain a narrower view. The use of general permits has been expanded. Although the Corps districts have discretionary authority to require activities allowable by general permit to undergo the more strenuous individual permitting process, they have seldom done so.

The third area of change would be in the permitting review process. The proposed reform of the 404 rule includes: acceleration of permit review that would give Corps staff less time to review permit applications; funding for resource agencies would be cut; revised memoranda of agreements (MOA) would curtain the interaction of agencies and their ability to evaluate and comment on permit decisions; public interest review standards by the COE would be revised to give greater weight to energy development and navigation; the use of permit conditions and mitigation requirements will be more strictly limited; and there would be more lenient treatment of individuals who have illegally begun work without permit.

The outcome of the pending lawsuit and how Congress acts on proposed changes will have to be closely monitored to see exactly what changes Section 404 will undergo.

How Wetlands are Perceived in Florida Law

"A marsh or a swamp which is not physically connected

to a lake or stream by even occasional overflow is treated as surface water in spite of its permanence" (Maloney 1971). Therefore, it is common to see wetlands characterized as "surface water" in the Florida Statutes, which administers authority to the various agencies. It is not until such agencies mandate specific actions that the actual term of "wetlands" is used.

Florida Law Regarding Wetland Authority

The following are Florida laws and statutes regarding wetland use, permitting and state jurisdiction. Below are selected excerpts from The Florida Environmental Land and Water Management Act of 1972 - Chapter 380:

> It is the intent that, in order to protect natural resources and environment of this state as provided in s. 7, Art. II of the State Constitution, insure a water management system that will reverse the deterioration of water quality and provide optimum utilization of our limited water resources, facilitate orderly and well-planned development, and protect health, welfare, safety, and quality of life of the residents of this state, it is necessary adequately to plan for and guide growth and development within this state. In order to accomplish these purposes, it is necessary adequately to plan for and guide growth and development within this state. In order to accomplish these purposes, it is necessary that the state establish land and water management policies to guide and coordinate local decisions relating to growth and development; that such state land and water management policies should, to the extent maximum possible, be implemented by local governments through existing processes for the guidance of growth and development; and that all the existing rights of private property be preserved in accord with the constitution of this state and of the United States.

Areas of Critical State Concern

Selected excerpts:

(1)(a) The state land planning agency may from time to time recommend to the Administration Commission specific areas of critical state concern. In its recommendation, the agency shall include recommendations with respect to the

purchase of lands situated within the boundaries of the proposed area as environmentally endangered lands and outdoor recreation lands under the Land Conservation Act of 1972. The agency also shall include any report or recommendation of a resource planning and management committee appointed pursuant to s. 380.045; the dangers that would result from uncontrolled or inadequate development of the area and the advantages that would be achieved from the development of the area in a coordinated manner; a detailed boundary description of the proposed area; specific principles for guiding development within the area; and an inventory of lands owned by the state, federal, county, and municipal governments within the proposed area.

(2) An area of critical state concern may be designated only for:

(a) An area containing, or having a significant impact upon, environmental or natural resources or regional or statewide importance, including, but not limited to, state or federal parks, forests, wildlife refuges, wilderness areas, aquatic preserves, major rivers and estuaries, state environmentally endangered lands, Outstanding Florida Waters, and aquifer recharge areas, the uncontrolled private or public development of which would cause substantial deterioration of such resources. Specific criteria which shall be considered in designating an area under this paragraph include:

1. Whether the economic value of the area, as determiend by the type, variety, distribution, relative scarcity, and the condition of the environmental or natural resources within the area, of of substantial regional or statewide importance.

2. Whether the ecological value of the area, as determined by the physical and biological components of the environmental system, is of substantial regional or statewide importance.

3. Whether the area is a designated critical habitat of any state or federally designated threatened or endangered plant or animal species.

4. Whether the area is inherently susceptible to substantial development due to its geographic location or natural aesthetics.

5. Whether any existing or planned substantial development within the area will directly, significantly,

and deleteriously affect any or all of the environmental or natural resources of the area which are of regional or statewide importance.

Land Conservation Action of 1972, Chapter 259

Selected excerpts of "Powers and Duties of "Board"":

Definition: "Board" means the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund.

(1) For state capital projects for environmentally endangered lands:

(a) The board is given the responsibility, authority, and power to develop and execute a comprehensive plan to conserve and protect environmentally endangered lands in this state. This plan shall be kept current through continual reevaluation and revision.

Local Government Comprehensive Plan Act of 1975, Chapter 163

Selected excerpts from "Intent and Purpose":

(1) This act shall be known and may be cited as the "Local Government Comprehensive Planning Act of 1975".

(2) In conformity with, and in furtherance of, the purpose of the Florida Environmental Land and Water Management Act of 1972, Chapter 380, it is the purpose of this act to utilize and strengthen the existing role, processes, and powers of local governments in the establishment and implementation of comprehensive planning programs to guide and control future development.

(3) It is the intent of this act that its adoption is necessary so that local governments can preserve and enhance present advantages; encourage the most appropriate use of land, water, and resources consistent with the public interest; overcome present handicaps; and deal effectively with future problems that may result from the use and development of land within their jurisdictions. Through the process of comprehensive planning, it is intended that units of local government can preserve, promote, protect, and improve the public health, safety, comfort, good order,

appearance, convenience, law enforcement and fire prevention, and general welfare; prevent overcrowding of land and avoid undue concentration of population; facilitate the adequate and efficient provision of transportation, water, sewage, schools, parks, recreational facilities, housing, and other requirements and services; and conserve, develop, utilize, and protect natural resources within their jurisdiction.

Required and Optional
Elements of Comprehensive Plan

(7) Such other elements as may be peculiar to, and necessary for, the area concerned and as are added to the comprehensive plan by the governing body upon the recommendation of the local planning agency.

(8) All elements of the comprehensive plan, whether mandatory or optional, shall be based upon data appropriate to the element involved.

Plant Industry - Chapter 581

Selected excerpts - Preservation of Flora in Florida:

(1) PROHIBITIONS; PERMITS:
(a) With regard to any plant on the Endangered Plant List provided in subsection (2), it is unlawful for any person:

1. To willfully injure or destroy any such plant growing on the private land of another without first obtaining the written permission of the owner of the land or his legal representative.

2. To willfully injure or destroy any such plant growing on any public land or water without first obtaining the written permission of the superintendent or custodian of such land or water and a permit from the department as provided in this section.

4. To willfully harvest, collect, pick, or remove three or more individual plants of a given species listed on the Endangered Plant List from any native habitat without first obtaining the written permission of the owner of the land or his legal representative or, in the case of public land or water, the written permission of the superintendent or custodian of such land or water, and a permit from the department as provided in this section.

Endangered Plant List:

The following shall be included in the Endangered Plant List:

(a) Asimina pygmaea (pink pawpaw)
(b) Asimina tetramera (four-petal pawpaw)
(c) Asplenium auritum (auricled spleenwort)(fern)
(d) Blechnum occidentale (sinkhole fern)
(e) Campyloneurum angustifolium (narrow swamp fern)
(f) Cassia keyensis (Key cassia)
(g) Catesbaea parviflora (dune lily-thorn)
(h) Catopsis sp. (bromeliad)
(i) Cereus gracilis (prickly apple cactus)
(j) Cereus robinii (tree cactus)
(k) Chionanthus pygmaeus (fringe tree or granny-graybeard)
(l) Clusia rosea (balsam apple)
(m) Coccothrinax argentata (silver palm)
(n) Cucurbita okeechobeensis (Okeechobee gourd)
(o) Cupania glabra (cupania)
(p) Cyrtopodium punctatum (cowhorn or cigar orchid)
(q) Dennstaedtia bipinnata (cuplet fern)
(r) Encyclia boothiana (Epidendrum boothianum) (dollar orchid)
(s) Epigaea repens (trailing arbutus)
(t) Guaiacum sanctum (lignum vitae)
(u) Guzmania sp. (bromeliad)
(v) Ionopsis utricularioides (delicate ionopsis orchid)
(w) Magnolia ashei (Ashe magnolia)
(x) Magnolia pyramidata (pyramidal magnolia)
(y) Maxillaria crassifolia (orchid)
(z) Ophioglossum palmattum (hand fern)
(aa) Parnassia grandifolia (grass-of-Parnassus)
(bb) Polyrrhiza lindenii (ghost orchid)
(cc) Rhododendron austrinum (orange azalea)
(dd) Rhododendron chapmanii (Chapman's rhododendron)
(ee) Ribes echinellum (Miccosukee gooseberry)
(ff) Roystonea elata (Florida royal palm)
(gg) Sarracenia leucophylla and Sarracenia rubra (pitcher plants)
(hh) Scaevola plumieri (scaevola)
(ii) Strumpfia martima (pride-of-big-pine)
(jj) Suriana maritima (bay cedar)
(kk) Taxus floridana (Florida yew)
(ll) Tillandsia fasciculata (wild pine bromelaid)(included because of very high harvest rate)
(mm) Torreya taxifolia (Florida torreya)
(nn) Tournefortia gnaphalodes (sea lavender)
(oo) Trillium lancifolium (trillium)
(pp) Zephyranthes simpsonii (zephyr lilly)

Environmental Control - Chapter 403

This section of the chapter declares that "the public policy of the state is to conserve the waters of the state to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and other aquatic life, and for domestic, agricultural, industrial, recreational and other beneficial uses. It also prohibits the discharge of waste into Florida waters without treatment necessary to protect those beneficial uses of the waters."

The section of Chapter 403 deals with pollution control; underground, surface, and coastal waters. "The Department of Environmental Regulation and its agents shall have general control and supervision over underground water, lakes, rivers, streams, canals, ditches and coastal waters under the jurisdiction of the state insofar as their pollution may affect the public health or impair the interest of the public or persons lawfully using them."

Florida Water Resources Act of 1972, Chapter 373

Chapter 373 declares it to be the policy of the legislature:

(a) To provide for the management of water and related lands resources;

(b) To promote the conservation, development and proper utilization of surface groundwater;

(d) To prevent damage from floods, soil erosion and excessive drainage;

(e) To preserve natural resources, fish and wildlife;

(f) Otherwise to promote the health, safety and general welfare of the people of this state.

It is the intent of the Legislature to vest in the Department of Environmental Regulation or its successsor agency the power and responsibility to accomplish the conservation, protection, management and control of the waters of the state and with sufficient flexibility and discretion to accomplish these ends through delegation of

appropriate powers to the various water management districts.

Water Quality Assurance Act of 1983

Selected excerpts:

This act authorizes a variety of activities all related to water quality. These in turn relate directly and indirectly to wetlands.

Part I: Directs the DER to be the central depository for scientific information and ground water research for the state.

Part II: Directs DER to establish a system of groundwater contamination monitoring statewide.

Part III: Directs DER, in coordination with the Florida Department of Health and Rehabilitative Services (HRS) to establish programs to prevent and/or minimize the danger of contamination of potable water supplies.

Part IV: Directs the five-state water management districts to inventory and develop a detailed work plan to plug these wells.

Part VI: Provides a program for local hazardous waste management assessment, identifies small hazardous waste generators and administers a program for appropriate methods of disposal:

- directs the designation of a local (county/regional) hazardous waste storage site.
- creates "amnesty days", small hazardous waste generators can deposit waste at a designated site free of charge.
- establishes the governor and cabinet to decide disputes over hazardous waste siting issues.
- prohibits hazardous waste landfills in Florida.

Part VIII: Creates new and more stringent regulations for septic tank installation statewide.

Applicant must have 1/2 acre lots in order to have septic tanks and wells on the same lot.

Part IX: Provides grants to help build sewage treatment facilities.

Part X: Expands the delegation of powers from DER to the water management districts. Redefines and clarifies the review powers of the Land and Water Adjudicatory Commission.

Part XI: Creates the Water Quality Assurance Trust Fund, intended to fund the act. It also empowers DER to establish rules to regulate above and below ground storage tanks.

The Warren S. Henderson Wetland Protection Act of 1984

This act makes certain changes in DER jurisdiction and other areas related to wetlands. The following are among the more significant changes:

- when issuing dredge and fill permits, DER may consider the adverse affect the activity will have on the conservation of fish and wildlife, including endangered or threatened species or their habitats to such an extent as to be contrary to the public interest.

- DER jurisdiction is based on dominant vegetation and if requested by the permit applicant, on USDA Soil Conservation Service determination of hydric soils.

- the expanded DER jurisdiction will not apply to development where 30% or more of lots in the subdivision are approved for sale, have been sold or a development order exists subsequent to January 1, 1970. These developments will be subject to DER regulations that existed prior to January 24, 1984.

- sand, limestone, and limerock mining are exempt from new regulations, regulations existing prior to January 24, 1984, will be used for a period of 10 years.

- agricultural activites are under the

jurisdiction of the Water Management Districts.

- a central wetlands monitoring system will be established, it will; determine general location of wetlands, identify impacts to and losses of wetlands due to permits issued, and maintain statistical records on permits.

- requires the standardization of criteria for water quality in port areas. This rule applies to 12 port cities named, including Jacksonville.

- it makes additions and deletions to the vegetative index and adds a large number of new plant species to the vegetative index that determines DER jurisdiction and wetland boundaries.

- creates a vegetative review committee who review the operation of the vegetative index.

- establishes specific boundaries in parts of the Everglades and designates this area as a water of the state. This also includes waters that are contiguous to the specificly stated boundaries.

- requires that DER consult the Department of Agriculture and Consumer Affairs and the Institute of Food and Agricultural Sciences (IFAS) of the University of Florida, as well as the U. S. Soil Conservation Service in developing a wetland indicator index using soils in combination with vegetation.

St. Johns River Water Management District

Selected excerpts from Management and Storage of Surface Water, Chapter 40C-4:

Chapter 40C-4 requires permits for water control systems, i.e., dam, impoundment appurtenant work or works which exceed certain thresholds established by the district. A general or individual permit must be obtained prior to undertaking these activities if such activity:

- is capable of impounding a volume of water of 40 or more acre feet.

- serves a project with a total land area equal to or exceeding 40 acres.

- provides for the placement of 12 or more acres of impervious surface which constitutes 40 or more percent of the total land area.

- contains a traversing work which traverses:

  - a stream or other water course with a drainage area of 5 or more square miles upstream from the traversing work.

  - an impoundment of more than 10 acres of surface area.

- contains a surface water management system which serves an area of five or more contiguous acres of hydrologically sensative areas which has a direct hydrologic connection to:

  - a stream with a drainage area of five or more square miles.

  - an impoundment with no outfall which is not wholly owned by the applicant and which is ten acres or greater is size.

  - a hydrologically sensitive area not wholly owned by the applicant.

Consideration is currently being given to modifying Chapter 40C-4.

Department of Environmental Regulation (DER) Jurisdiction

All the preceeding Florida Statutes that administer wetland authority all have jurisdiction in various areas.

The Department of Environmental Regulation (DER) is the agency that is generally dealt with most often at the state level in relation to wetland protection. The reason being that DER has influence and jurisdiction in the areas of water quality standards (Chapter 17.3) and permits (Chapter 17-4 for construction pollution sources, discharge of effluent, dredge and/or fill activities, etc.)

Water quality standards regulate the quality of effluent discharged into Florida surface waters and adjacent wetlands. This chapter sets standards for what pollutants can be discharged into the different classes of surface water within the state. This Chapter lists in detail which and how much pollutant is allowed in each water body classification. Criteria for classifications are listed as well as which particular surface water is in which classification. This Chapter also lists the different classes of groundwater and their uses.

Chapter 17-4 on permitting states that a permit is required to discharge effluent into Florida surface waters.

> "Any stationary installation which will reasonably be expected to be a source of pollution shall not be operated, maintained, constructed, expanded or modified without an appropriate and currently valid permit issued by DER."

Chapter 17-3 sets water quality standards in the state, while Chapter 17-4 outlines where and when permits are required before any effluent can be discharged or any activity can be commenced that could reasonably be assumed to affect water quality. The permits outline what activities are acceptable and how to pursue these without violating the required water quality in the area.

This Chapter lists exemptions to permitting, how required permits are secured and what activities require permits.

Both these Chapters help control water quality in wetland areas, dredge and fill in lakes, rivers and streams, bays, bayous, sounds, estuaries and natural tributaries. These Chapters use different classifications of water body types and uses, in order to control the quality effluents discharged into and the uses of surface waters in Florida.

The Wetland Protection Act is the most comprehensive state legislation to date focused solely on the protection of wetlands. This legislation expands the vegetative index in 17-4 FAC, thereby increasing DER jurisdiction to some extent, allows DER to consider the impacts activities will have on wildlife and habitat, exempts some mining industries, designates the water management districts to regulate agriculture activities regarding this law, and designates the Everglades area as waters of the state. In general, this law expands DER jurisdiction in wetlands.

Jacksonville City Ordinances Related to Wetland Protection

There are basicallly two ordinances that could affect wetland protection in the Duval/Jacksonville area. The first is the City Ordinance requiring permitting for dredge and fill operations within the City, and the second ordinance regulates activities in the floodplains and the various floodplain zones.

The City of Jacksonville requires all persons (independent and public agencies) desiring to place fill on submerged lands or to do any dredging in connection with such filling operation to apply in writing to the City of Jacksonville Public Works Department.

The Department of Public Works requires plans and drawings of the proposed construction, the volume of dredge and/or fill, location of mean highwater line, use and zoning of the property in question and other information deemed necessary. The Public Works Department will do an on-site investigation to verify the information. A public hearing on the proposed activities is also required.

The City Council must find that certain conditions are met before a permit is issued. The proposed extension or dredge and filling of lands may not be in violation of any statute, zoning law, ordinance or other restrictions. No harmful obstruction to or alteration of the natural flow of navigable waters that will arise from the proposed construction will be allowed. No harmful or increased erosion, shoaling of channels or stagnant areas of water will be created. No material injury or momentary damage will be caused to adjoining land. The granting of the requested permit and subsequent construction must not interfere with conservation of fish, marine and wildlife or other natural resources to such an extent that it will be contrary to the public interest. This activity may not result in destruction of oyster beds, clam beds, or marine productivity, including but not limited to the destruction of natural marine habitats and grass flats suitable as nursery or feeding grounds for marine life. In general, this proposed extension, filling or dredging will not otherwise be contrary to the public interest.

Time limits for permits are stated and recognition of the fact that the application will be forwarded to the State

Department of Environmental Regulation and the U. S. Corps of Engineers is made.

The permit is conditional upon the approval of the State of Florida Department of Environmental Regulation. The ordinance states that it is against the law to undertake any construction, dredge and/or fill activities without valid permit from the City of Jacksonville or DER, or where required, from both.

There are some exemptions from permitting that are allowed. Areas that are not designated by DER as areas of environmental significance, in which work in the navigable waters of the City or offshore will not damage fishing, the tourist industry or result in irreplaceable loss of natural resources. Other exemptions include cases where projects will not exceed four thousand cubic yards of material placed or removed from navigable State waters. This is a less strenuous application process. Short-form application requiring less information is used under these circumstances.

Floodplain regulations are the other area where City regulations protect wetland areas. The City floodplain regulations (Chapter 601) regulate the activities that can take place in certain floodplain zones as designated by the Federal Insurance Administration and the Food Hazard Boundary Maps. The City adopted the Federal Flood maps as their official maps and list in the ordinance what is allowed in each particular zone, as well as the height of the floor level required in particular flood hazard zones.

The general floodplain district is delineated as flood hazard areas on the Federal Flood Insurance Rate Maps (FIRM) having zone symbols A, A1 through A10, A0 and V1 through V9. These zones are shown in detail on the FIRMs and allowed uses by category are listed in Section 601.104 of the City Code entitled "Permitted uses within General Floodplain Districts."

The City is divided into twelve sections (12 maps) with flood heights for the one hundred and five hundred year flood areas mapped in detail. Uses allowed within each zone are also stated.

This ordinance also list exemptions and special exceptions as well as criteria needed to meet these exemptions. Permits are required for special exceptions. Application procedures, time limits and resource in case of denial are explained.

These two ordinances are presently the extent of the wetland protection regulations in the Duval/Jacksonville City Codes.

Ordinances from Other Cities

There are several good examples of wetland protection regulations that have been developed at the local or City level. The first examples are from cities in Florida and the rest are ordinances from cities outside Florida that are considered optimal by leading authorities on wetlands and wetland legislation.

Metro-Dade County

The Metro-Dade area has had a wetland protection ordinance in force since 1980. The Miami area was growing so quickly that an ordinance was needed that would stop the encroachment of development into valuable watershed area to the south and east of the metropolitan area. This area borders portions of the everglades.

The area under development pressure was declared an "Area of Critical Environmental Concern". The ordinance states very specifically the boundaries of this area that is divided into four parts. The ordinance divides the 242 square mile area into four sections because of varying topography, surface water and tidal inundation. A description of what development is allowed in each area is stated in additional implementation regulations. In tidal areas, little or no development is allowed. Certain types of agriculture are allowed in some sections and only one housing unit per forty acres is allowed in any of the four quadrants.

The implementation regulations provides penalties for anyone selling land in this area of critical environmental concern and failing to notify the buyer of the imposed limitations on the land.

This is not a general wetland ordinance, but a very specific attempt to protect a particular area from development pressure. The boundaries of the area are described in such fine detail that a possible dispute over what land is protected would be minimal, if any.

Seminole County, Florida

The Center for Wetlands and the Department of Urban and Regional Planning at the University of Florida have written a Wetland Development Ordinance for Seminole County, Florida. This ordinance is presently in second draft form and has not been officially adopted by the county at this writing.

This ordinance is an effort to protect wetland areas without totally restricting development in them and adjacent areas. This ordinance identifies seven different wetland types, lists criteria used to identify them, and has a classification system, by points, that is used to evaluate the significance of the wetland area. Significance depends on size, connectedness, landscape diversity, quality of surrounding landscape, intactness of the wetland and uniqueness. The presence of endangered species is, also, taken into consideration.

Hollywood, Florida

Hollywood, Florida provides a good example of zoning use. It has created new categories, one of which is an "environmentally sensitive" zone.

The purpose of this new zoning designation is to provide suitable standards for review of developments in environmentally sensitive areas. Land within this district may be assigned a zoning designation of either ES-R1 (environmentally-sensitive-single family residential) or ES-C (environmentally-sensitive-conservation). ES zoning provides for reasonable development and use of upland areas located adjacent to environmentally sensitive wetlands that have been identified as having particular ecological significance.

ES-R1 classification permits detached and attached single family dwellings and accessory uses. Densities are restricted to five dwelling units per acre. All development in ES-R1 zones is subject to development standards intended to ensure protection for adjacent environmentally sensitive wetlands.

The ES-C district is intended to provide for the protection and preservation of environmentally sensitive wetlands that have been identified as having particular ecological significance. ES-C zoned areas discourage

residential development and other development except for passive recreation uses. If it is determined that no reasonable uses can be gained from the property by the land owner, residential development of one dwelling unit per 15 acres may be allowed.

Hollywood has another type of special zoning district established in its North Beach area called the "North Beach Development District". This rather unique area is the City's last remaining undeveloped beachfront. This district is intended to provide for and encourage appropriate residential, resort, office, and commercial uses within a coastal environment with unique features. These regulations are intended to accommodate development within the unique constraints imposed by the sensitivity of the area.

This area is divided into two zones, the NBDD-DZ or the "North Beach Development District - Development Zone" and the NBDD-CZ or "North Beach Development District - Control Zone". The purpose of these two zones within the development district is to further identify the area where development can occur without substantial environmental cost - development zone - and where development must be limited to avoid serious environmental degradation - control zone.

The development zone or NBDD-DZ is the established area in which higher density, multi-family, hotel/resort, commercial uses may occur. The control zone or NBDD-CZ is established to allow property owners to reasonable use of their lands while preserving to the maximum extent possible the natural and environmentally distinctive features of the land as well as reducing environmental costs associated with development of this sensitive area. Higher density development is allowed in the DZ and only limited single family development is allowed in the CZ.

Sanibel, Florida

The City of Sanibel, Florida, also utilizes zoning as a land management tool in order to protect coastal wetlands in its "Residential Planned Development and Open Space Zoning Regulations". In this open space zoned category, uses are restricted to single family residential and public recreation as well as other non-economic open space uses. Development must be in accordance with the local master plan and a precise development must be submitted and approved. All development must be located in upland areas leaving sensitive areas untouched except for necessary access.

Monroe County

Monroe County, Florida uses "Shoreline Protection Zoning" to protect its shoreline area. The purpose of this zoning is to preserve the conditions and characteristics of the shoreline to promote its stabilization, protect against storm surge, maintain water quality, protect wildlife and marine habitats and enhance the productivity associated with these areas. Approvl of development in this shoreline protection zone is subject to Zoning Board findings that it will not encroach upon or destroy the value of the shoreline area or otherwise be contrary to the purpose of the zoning. The key to determining whether standards are met is a determination that potential water pollution will be minimized during and after construction.

Monroe County's zoning ordinance includes requirements for dredge and fill operations. These requirements provide additional regulations for upland, wetland and tidal areas in the County.

Jurisdictionally, the ordinance requires that county administrators review dredge and fill application for uplands and wetlands, while the County Commission reviews dredge and fill applications for the tidal area.

Collier County, Florida

Collier County uses "Special Treatment Overlay Districts" which are designed to encourage development outside environmentally sensitive areas. Site plan review requirements are more stringent in the special districts than in other zones. The requirements are geared toward protecting the County's wetlands and coastal areas. (Ordinances 76-30; 78-19; 78-71; Collier County, Florida).

Clearwater, Florida

Clearwater, Florida uses an "Aquatic Lands District" to restrict uses on all water bodies and submerged lands in the community. The intent is to preserve these areas in a natural state. Privately owned lands are excluded from these restrictions unless they come within 30 feet of mangrove areas. Special exception uses may be allowed by the Board of Adjustment and Appeals on Zoning, based on evidence that the proposed uses will:

- protect the rights of the public to use the waters and submerged lands;

- preserve grasses and mud flats for breeding and spawning of fish;

- provide adequate protection against saltwater intrusion;

- protect existing navigable channels and basins;

and will not:

- cause or contribute to erosion of waterfront property; and

- alter water flow or cause debris to accumulate.

This proposed ordinance lists descriptions of the seven types of wetlands found in Seminole County. Another section describes the activities and impacts that certain activities will have on wetland areas.

Activities and uses are matched to wetland types and determination is made as to whether that use or activity is compatible or incompatible with permit restrictions. The last subsection lists the performance standards that are necessary to meet the requirements for a wetland development permit.

This ordinance tries to cover all activities that could impact on wetlands and the affects they could have. One section discusses allowable uses in wetlands. Uses are described in terms of compatible, incompatible or compatible with conditions attached. The ordinance will allow a certain percentage of wetland disturbance provided other criteria are met.

Dartmouth, Massachusetts

Dartmouth, Massachusetts uses the creation of an overlay zoning district to protect wetlands. Any development or general use in wetlands is by variance of special permits. These permits must be issued by the city after review by several agencies and submission of plans that include site plans to scale designed by professional engineers, boundaries and dimensions, land contours, existing and proposed locations of structures, water courses, drainage systems, sewage systems and others. Several conditions may also be imposed by the city regulating height of floor level from flood level, safety standards and numerous tests performed at the building site. This ordinance has similar, but separate sections for freshwater wetlands and tidal wetlands.

Each request for encroachment is viewed as a separate variance and strict review and controls can be used to protect the wetlands from improper encroachment and protection of valuable resources.

New Castle, New York

New Castle, New York has implemented a wetland ordinance utilizing the police power and citing public purpose to control uses on designated wetlands. This municipality focuses on the preservation aspect as reason for regulating uses in wetlands.

This ordinance lists uses prohibited in wetlands, uses permitted by right, uses and activities that require approval by the town engineer and activities that require Planning Board approval. Even activities allowed by right may be subject to review by the town if the land owners are notified.

This ordinance prohibits any construction, deposits, fill, or removal of material from any wetland or associated upland area within forth feet of wetlands, a water body, or a water course.

This ordinance allows wetlands to be used for recreation, grazing, maintenance of water control structures, cutting of bushes and trees, all as long as they are not perceived to have any adverse affect on the wetlands. If so prescribed, owners may be notified and required to seek approval of these activities from the local government.

Activities that require the town engineers' approval are: removal of water deposited silt that does not exceed fifteen cubic yards, restore land elevations altered by storms, construction of driveways, use of chemicals and any activity the Planning Board feels needs approval by the town engineer.

Approval by the Planning Board is also required on many activities in wetland areas. The Planning Board may review any operation that the town engineer must review, but is on a larger scale that can be effectively handled by his department. The Board may also review any activity that they notify the property owners they intend to assume jurisdiction over to further the purpose of the law. The Planning Board may also have jurisdiction over construction of roads and municipal or utility uses (roads, sewage treatment facilities, recreation facilities).

Permits are required for uses that must be reviewed by the town engineers and Planning Boards. The ordinance utilizes the police power granted to the city to protect the natural functions of surrounding wetlands.

Orono, Minnesota

The Orono, Minnesota ordinance uses a different approach to the rationale for implementation of wetland legislation. This city looks at the cost induced by flooding, improper building and locating wetlands and flood prone areas. In this ordinance, the focus is on eliminating the cost to the city for future damage that could occur when natural functions of wetlands are destroyed.

Orono uses maps of flood prone areas to utilize the permitting process. The ordinance designates three districts (floodway, general floodplain, and flood fringes) and allowed uses as well as reviews of uses for wetland areas. Included are standards for dredge and fill activities. Each district has permitted uses, conditional uses, procedures for permitting and review and the use of attached conditional use permits. This ordinance is one of the more stringent that has been implemented to date.

Smithtown, New York

The Smithtown, New York community has adopted and implemented a wetland ordinance that is considered a model regulation in the area of wetland protection. Smithtown

justifies this regulation by citing the need for preservation of these areas while stating that the intent of the ordinance is to promote the health, safety and welfare of the community through implementation of the ordinance.

The Comprehensive nature of the ordinance is seen in its content, which includes: a stated purpose, definitions, regulated activities, permitted uses, allowances for exceptions, permit application procedures, standards for granting permits, public participation in the form of hearings and more.

The first clause of the ordinance states that no one can conduct a regulated activity within or adjacent to wetlands without obtaining a permit. Regulated activities are explained under definitions and encompasses a lengthy list that includes: drainage, dredging, removal of soil, dumping, filling, erecting any structures or roads, any form of pollution including septic tanks and discharge of effluents and any other activity that would substantially degrade or interrupt natural wetland functions.

The next category listed is activities that do not require a permit. These activities are limited to removal of natural products adjacent to recreational, commercial fishing and shellfish areas, and activities subject to review by State and County Departments of Health, state environmental conservation law and other state regulations and emergency activities.

Application procedures required for securing permits, public hearing notices and agency reviews are discussed. Conditions that may be imposed on permits are listed along with the agency's powers. This ordinance requires that a performance bond be posted to assure compliance with all terms of the permit. Reasons are also listed for permit suspension and penalties for non-compliance with the ordinance.

St. Johns River Water Management District

The St. Johns River Water Management District (SJRWMD) is one of five Florida water management districts. The Water Resources Act of 1972, Chapter 373, Florida Statutes, assigned responsibility for water management from a regional perspective and the five water management districts were created.

The St. Johns District covers twenty-one percent of the states total area, 12,400 square miles. The districts major hydrologic unit is the St. Johns River and related watershed. This district covers Duval, Nassau, Clay, St. Johns, Flagler, Volusia, Brevard, Indian River, Seminole and parts of Lake, Marion, Orange, Osceola, Putnam, Bradford, Alachua, St. Lucie, Lake and Baker Counties.

The intention of the Legislature is to have the water management districts promote the conservation, storage and proper development of water resources. Proper utilization of surface and ground water along with environmentally related land and natural resources is also a major concern. As a means of protecting the resources for the public welfare, various parts of the Water Resources Act establishes general guidelines for a regulatory program, which is further defined by administrative rules.

Key elements of the permit process include evaluation of both resources and the proposed use. A permit is required prior to undertaking a regulated activity. Enforcement includes administrative, civil, or criminal action against violators and required restoration of the affected area to the original condition.

Permitted activities under the District regulatory program include construction, alteration, or discharge affecting "Works of the District (Rule 40C-6)" and "Water Well Construction (Rule 40C-3)" for all public supply sources and private wells, depending on the well size and area of the district.

The last year or so, focus has been on the revision and implementation of Rule 40C-2, "Consumptive Use of Water" and 40C-4, "Management and Storage of Surface Water". This management and storage of surface water rule may affect the wetlands more than other rules of the district. This section requires the natural function of wetlands to be used in conjunction with water storage facilities. This rule requires that construction or related activities may not adversely affect the natural function of the wetlands. Permitted activities cannot adversely impact on receiving waters or adjacent lands and cannot be otherwise harmful to the water resources of the district.

The St. Johns River Water Management District is run by the Board of Governors who are appointed by the Governor.

The Water Management Districts have the power to levy

ad valorum taxes that are used to run the district and also purchase lands the district feels are vital to the protection of the district watershed. The Legislature empowered the district with taxing and rulemaking ability, with district rules having the affect of law. The district board is appointed and relatively independent, being finally accountable to the State Legislature who created the management districts.

The Water Management Districts have a powerful influence over water uses and related lands. The St. Johns River Water Management District has the potential to be a powerful tool in the protection of wetlands within Duval County and the entire district.

IDENTIFYING MAJOR PROBLEMS AND ISSUES IN LOCAL WETLAND PROTECTION

IDENTIFYING MAJOR PROBLEMS AND ISSUES IN LOCAL WETLAND PROTECTION

Local Acceptance

Local acceptance and support of the need for additional wetland protection may be a large stumbling block in the implementation of any local wetland protection effort. There are large segments of the local population that feel state and federal legislation is already doing an adequate job of wetland protection and local legislation would merely be redundant.

State and federal regulations regarding wetlands are not all encompassing. There are many areas, especially isolated wetlands that DER does not have jurisdiction in. These different agencies also consider, in many instances, different criteria when evaluating wetlands or proposed uses in these areas. There are large areas of isolated wetlands in Jacksonville that perform valuable functions that presently are not afforded even minimal protection.

There are also development problems regarding wetland use that are unique to this area and may not be specifically addressed by blanket state and federal laws. Local problems can generally be better addressed by local solutions.

Duval County has been blessed with large areas of developable land and has not had the problem of facing too many consequences as they have in other parts of the state. The city is just presently beginning to feel the limits of its environment.

The base of knowledge regarding wetlands and their value is expanding. A national and statewide awareness of the value of these areas and need to preserve them has also grown.

Local understanding and regard for these areas has also undergone changes; not as rapidly as it has in areas with severe impending problems and losses, but awareness is growing.

This along with the state and federal impetus toward wetland preservation is a positive sign. However, the treatment of our wetlands still needs to be addressed locally.

Responsibility for Wetlands

At present, one of, if not the major issue regarding wetlands, is who will take ultimate responsibility for protected wetlands areas. If developers are not allowed to utilize wetlands in the most profitable way, i.e., using them as part of the buildable lot, then they view them as a liability and prefer to dedicate them to the city. The city is reluctant to accept the dedication for several reasons.

By accepting the dedication of these areas, it is argued, they become city property and are removed from the tax rolls and no longer generate revenue or do not generate the revenue they could have had they been used otherwise.

Another major problem regarding city acceptance of wetland areas is the liability factor. The City is liable for activities that happen on city property. The City officials fear the City may be held liable or open to law suits for any accidents occurring on city owned property. Also, any possible maintenance and the cost of such is a concern to City officials.

A thorough understanding of the value of the functions performed by these areas and how these areas may be incorporated into local drainage and storm retention patterns at a substantial savings to the City may help change the opinion of local officials in regard to the need

for the City to retain these areas in their natural state.

Preserving Natural Drainage Ways

Preserving selected natural drainage ways and wetlands associated with these areas can be a very cost effective form of storm water management and accompanying filtration of runoff. This particular technique may not be applicable in all instances, but where natural floodplains and wetlands are available, the incorporation of these areas can be quite cost efficent.

Building and maintaining man made water control systems can be very costly. Awareness of the cost benefits and availability of incorporating natural drainage patterns and stormwater management systems into local designs should be stressed. In many cases, the incorporation of these areas can help avoid future problems and expenditures by avoiding development in less than suitable areas. Alternatives and innovative ways to approach drainage problems should be a consideration for local officials. An adjustment in attitude toward wetlands may be the most important problem to overcome in this area.

Designing an Easily Implementable System

Designing an economical, easily implementable protection system for Jacksonville will be a difficult task. Jacksonville, like most cities, has limited resources and numerous problems that require funding. Wetland protection, as previously stated, is not a top priority item. As often is the case, potential problems are not addressed until they reach crisis proportions. Often, by then, it is too late or the solution has become several times more costly than originally anticipated. By establishing a protection system for these areas now, it is felt many future problems could be avoided.

It is anticipated that protection efforts designed for the Jacksonville area will need to be easily implemented, economic, and designed to work within existing procedures and established departments. Delineation of wetland areas will need to be by as simple a method as possible, mainly because acquiring new staff to help implement the plan will in all reality be minimal. The city has limited staff with expertise in this area and the cost of acquiring more may be cost prohibitive.

In summary, solutions to local wetland protection will have to be designed to work within existing systems with existing staff at a minimal cost to the city. This limits the possible solutions and is one of the larger problems faced at the local level.

GOALS AND OBJECTIVES FOR THE STUDY- AS DEFINED IN THE 2005 COMPREHENSIVE PLAN

GOALS AND OBJECTIVES FOR THE STUDY AS DEFINED IN THE 2005 COMPREHENSIVE PLAN

This wetland conservation study has as a main objective to implement the major recommendations of the 2005 Comprehensive Plan for Jacksonville regarding the protection of freshwater wetland resources.

These major recommendations in the 2005 Plan are the basis or source of the major goals and objectives of this study.

The Conservation and Coastal Zone Protection Element

The Conservation and Coastal Zone Protection Element of the 2005 Plan is the major source of the goals and objectives that will serve as the basis for designing a protection plan for these environmentally sensitive areas.

The 2005 Plan states goals and objectives, policies and recommendations for the use and protection of these areas.

The major objectives under the Water Quality section of the 2005 Plan are to meet and to protect the health and welfare of the citizens through avoiding the adverse affects

of water pollution. Maintenance of quality as well as quantity, i.e., conservation of water, is also a stated goal.

This section on Water Quality suggests policies for control of point source and non-point source pollution. The major objectives under the point source pollution are for the city to provide sewage treatment at regional facilities rather than numerous small package plants. All local facilities should be upgraded and maintained to meet applicable standards.

In areas of non-point source control, the 2005 Plan recommends that inpervious surfaces be limited where possible. "When impervious paving cannot be avoided, natural drainage systems should be protected and stormwater runoff incorporated back into the natural system. It also states that "stormwater drainage projects should simulate the natural drainage patterns as nearly as possible."

The section in the Conservation and Coastal Zone Element of the 2005 Comprehensive Plan on protection of sensitive areas states that "measures should be taken to encourage conservation of important natural resources and the function that they provide." Freshwater wetlands are one of four areas designated as sensitive areas.

One of the goals for these sensitive areas is to "enhance and conserve natural areas, wildlife habitats, fisheries resources, air and water quality and other renewable and non-renewable resources." One of the major objectives of this goals is to "protect the valuable functions of wetlands, estuaries and submerged lands including the territorial sea by maintaining the integrity of vegetation and hydrologic systems."

Another major goal for the protection of sensitive areas is "to encourage greater compatibility between the land development process and the natural environment." A major objective under this goal is to "enhance and conserve areas of environmental sensitivity, while permitting development that will hold economic alterations to acceptable levels. "To enhance the quality of development by controlling the encroachment of urbanization on lands poorly suited for development." Another objective of this goal is to "utilize natural resources to define and shape urban development patterns at both the county and community neighborhood scales." The 2005 Plan also states that the city should "integrate environmental and economic considerations into Jacksonville's decision-making process

in order to maximize the benefits derived from new development." As a general policy, the plan suggests that "new techniques should be developed to provide legal protection for the areas' natural resources as designated within the Comprehensive Plan."

Freshwater marshes are included as designated sensitive areas that should have a certain amount of protection. The section in the 2005 Plan that discusses the valuable functions of these areas also suggest policies for suitable activities and uses. These include: maintaining the basic function served by selected freshwater marshes and swamps as natural ecological units; natural retention mechanisms and surface water storage and treatment areas. The principle stream and valleys and other wetlands needed for stormwater retention, wildlife habitat or other special environmental use should be organized into the components of the city's open space and drainage system.

Additional policies for this area suggest that, "In general, wetland areas should not be drained since this destroys the character of the area."

There are several other policies suggested in relation to freshwater wetlands:

- "As a general rule, there should be no excavation in wetlands...excavation should occur only when required for public benefit."
- "There generally should be no solid fill roads or other structures in wetlands because they obstruct water flow. Unavoidable roadways that obstruct water flow should be elevated on pilings rather than placed on fill."
- "New development occurring in or adjacent to wetland areas should be designed in such a way as to protect their natural ecological integrity."
- "Development in areas surrounding small pockets of wetlands such as cypress ponds, should make use of those areas by maintaining their natural function and retaining them as open space."

This Conservation Element of the 2005 Plan makes recommendations for the preservation of these areas, one of which is to "encourage preservation of the natural elements of the drainage system through fee simple purchase, less than fee simple purchase, purchase of development rights or

formal agreements with property owners." Another proposal is for creating special drainage districts (based on watersheds). "Taxes levied could be used to acquire selected wetland elements of the drainage system. Alternately, user fee charges for drainage could be used to purchase marshes and swamps which represent basic components of the drainage system."

The 2005 Plan also endorses the use of regulation as a viable option in the effort to protect wetlands. "Protection of uplands associated with wetland areas is vital to the maintenance of these areas, therefore, development in upland areas should be regulated to prevent damage to wetlands." The 2005 Plan also suggests specific ideas for regulation, i.e., "Study the feasibility of implementing a system for transfer of development rights. The areas to be preserved would be selected areas. The zone to which these rights would be transferred would also be identified with special emphasis on the designated transit/development corridors. Development at the new higher density in the transfer zone would require the purchase of development rights from the preserved lands owners."

Recommendations for implementing these goals and policies are another item addressed in the 2005 Plan. One recommendation is for the establishment of design criterion for new developments. "In all areas of the city, development can be enhanced through the use of design criteria. These criteria should take into account the effect that new development will have on the environment."

Land Use Element

"Development intensities for the county's natural areas should be based on their capability to support certain types of development. Sensitive natural areas, such as wetlands and woodlands are suited to lower intensity uses which would not significantly alter their character and function. Areas less sensitive should be reserved for higher intensity uses. Development patterns will also be influenced by the transportation network and existing development."

The Land Use Element of the 2005 Comprehensive Plan makes recommendations related indirectly to wetland areas. The growth policies for the city under general land use suggest that "growth should not cause irretrievable environmental damage."

The Land Use Sub-Element, part of the section on land development policy, states that "sensitive areas, as defined in the Conservation/Coastal Zone Protection Element, can accept development, but the nature and extent of that development should be such as will insure that the land can contrive to fulfill its natural function." This category includes salt marshes, freshwater marshes and swamps.

The Land Use Element also contains implementation strategies for policies and recommendations. These include:

. "Review criteria should be developed in the following areas:

A. Tree Protection and Landscaping
B. Wetland Areas
C. Sign Control
D. Historic Preservation"

Recreation and Open Space Element

The Recreation and Open Space Element of the 2005 Plan makes further recommendations in the form of goals, objectives and policies regarding wetlands.

One of the major goals in this element is to develop a stream valley park system along major stream valleys. The main objective of this goal is to "acquire major stream valleys in the 100 year flood plain plus adjacent vital wetlands, wooded areas, conservation areas, etc. when deemed necessary for water protection and recreation."

The other major goal in this element, which is very closely related to the previously stated goal is to preserve stream valleys for passive recreation and watershed protection.

Sensitive Natural Areas

This recreation and open space element also discusses sensitive natural areas and defines and suggests limited uses for these environmentally sensitive and valuable locations.

Areas identified as having major ecological, hydrological, physiographic or historical importance to the public at large, which could not be developed without so altering the resource that the benefits are lost or significantly diminished qualify as sensitive natural areas. Preserving the natural integrity of these areas enhances the aesthetics and quality of life for residents and tourists; provides a measure of natural hurricane and flood protection; helps maintain ecological balance; promotes maintenance of our valuable commercial and sports fisheries; and provides areas for passive recreation.

The open space resources which should not be developed, and are vital for present and future generations, and other sensitive natural areas identified as having natural or institutional use limitations requiring special precautions prior to alteration or development are listed below. Failure to consider these limitations may result in the direct or indirect consequence harmful to the public health, safety and welfare. These areas are usually significant environmental resources which also provide public benefit. These areas are often appropriate for active and passive recreation.

- Selected Coastal (Tidal) Marshes
- Nassau River/St. Johns River Marshes Aquatic Preserve
- Selected Freshwater Marshes and Swamps
- Beaches and Dunes
- 100 Year Flood Hazard Area
- Forestry Management Areas (Public)
- Areas of Limited Use (Public and Private)
- Spoil Islands and Spoil Areas
- Agricultural Lands

An important consideration in preserving natural resource areas is the preservation of a diversity of natural habitats, allowing creatures fleeing situations such as new development, to seek accommodating circumstances in similar habitats.

By proper utilization and protection of the sensitive areas described herein, and examined in the Conservation Coastal Zone Protection Element, adequate recreational and open space opportunities can be provided for the present and future populations, without affecting the inventory of prime developable land, needed for the growth of the city. Conservation Parks are the primary tool for protecting these sensitive areas, while providing passive recreation opportunities to the people of Jacksonville.

The major focus of the Conservation Park Program will be the establishment of the Stream Valley Park System. Site size standards will reflect metropolitan and regional recreation and open space needs. Some of the most beautiful areas in Jacksonville are contained in the many stream valleys. Besides providing a major resource for public recreation, stream valley parks will also serve multiple conservation functions. These functions include the preservation and protection of the stream valleys themselves and their associated wetlands and watersheds. They also serve the need for stormwater management and water quality management. They provide scenic relief, while their wooded expanses of green space help screen large-scale development in urban areas, especially in densely developed growth corridors. In rural areas they complement the rural character that exists.

Stream valley parks and other wetlands proposed for conservation will also serve as "greenbelts" and "greenways". Greenbelts are continuous parcels of open space areas designed to form and define urban boundaries through the preservation of a strip of water or green land surrounding all or part of a metropolitan or municipal area. Greenways are open space wedges or finger-like projections that may follow natural forms including drainage systems. On a small scale than greenbelts, greenways perform urban shaping at various intervals and are found adjacent to various segments of an urbanized area.

Stormwater Management Sub-Element

The Stormwater Management Sub-Element of the 2005 Plan is an additional element that suggests goals and objectives in the area of stormwater management that are related to wetlands.

One of the main goals of this sub-element is "to provide a drainage system which efficiently provides protection to persons, property and the environment at a cost consistent with the public welfare. Some of the objectives associated with this goal are:

- "Encourage the design of drainage systems which minimize the financial and environmental cost to the community."
- "Guide urban development in a manner which minimizes potential flood damage and water quality degradation."

The other major goal for this sub-element is to establish stormwater management practices which are least disruptive to the environment and which promote the conservation of natural vegetation in floodplain areas and freshwater swamps for the purpose of slowing runoff. Several objectives of this goal include:

- "Encourage conservation of natural vegetation and limitations on the amount of impervious surfaces to minimize stormwater runoff."
- "Encourage the conservation of wetlands for the purpose of reducing and treating stormwater runoff."
- "Provide guidance towards the identification and selection of solutions to drainage problems which utilize and preserve the desirable features of the existing natural drainage system."

A policy suggested by this sub-element is that emphasis should be placed on the identification and application of "natural" techniques as well as capitalize on and be consistant with the natural processes. Another management practice suggested is a series of common ponds that lead to the major stream valleys where wetlands would preform their natural treatment function.

All of these goals, objectives and recommendations made in the 2005 Plan will be the basis for the protection plan that will be designed for this area.

ALTERNATIVE CRITERIA AND STANDARDS FOR WETLAND MANAGEMENT

ALTERNATIVE CRITERIA AND STANDARDS FOR WETLAND MANAGEMENT

Introduction

There are several alternatives and criteria used to establish management practices for areas that contain wetlands.

There are different criteria used to judge wetland value in different situations. Value in itself, is one of the criteria almost all municipalities can agree on. The value of a freshwater wetland varies with the type of wetland, location and needs of the governing body that regulates it.

Nearly all municipalities agree on the major value and function of wetlands. Freshwater wetlands serve as water retention areas. They serve as a natural system of filtration, absorbing pollutants and excess nutrients. Wetlands help retain stormwater, releasing it gradually and providing protection against flooding. They also serve as natural drainage ways and have potential for recharge of potable water. Wetlands are valuable wildlife habitat, capable of supporting diverse plant and animal life in smaller areas.

Aesthetics are also a valuable criteria for justifying the protection of wetlands. Aesthetics as a valuable asset is becoming more and more acceptable as a criteria. The Florida Fourth District Court of Appeals recently held that aesthetics in and of themselves will support zoning or rezoning (City of Sunrise vs. DCA Homes Inc., 42 South Second 1084 (Florida 4th DCA, 1982).

Different areas concentrate on different aspects of wetland value and it is reflected in the legislation they enact to protect these areas. Areas concerned with tourism tend to enact legislation that leans toward the aesthetic aspects of the area in question.

Nearly all cities in Florida realize the benefits wetlands provide as buffers against storms and flooding and as water retention areas. This is reflected in legislation that prevents alteration of natural drainage ways. Most cities have become increasingly aware of water quality and the problem encountered in maintaining a sufficient clean water supply in growing urban areas. Wetlands have the ability to act as a natural filtration system for water as well as being potential ground water recharge areas.

Many areas in Florida have enacted legislation to protect what they perceive as very valuable and sensitive wetland areas by: restricting land use, attempting to maintain ecological relationships, protecting wildlife habitat and protecting water quality in an area that is under tremendous development pressure.

Many Florida cities are attempting to protect their wetlands for similar reasons and with similar management strategies.

Development Criteria and Standards

There are several factors that must be considered when developing criteria and standards for wetland use, such as: soil suitability, ecological relationships, local drainage practices, existing land cover, as well as the impacts varying activities will have on these environmentally sensitive areas.

Alternative criteria and standards should be identified for management practices related to such factors as: land use suitability, maintaining ecological relationships, drainage practices, land cover, dredging, filling solid waste disposal, water quality management, pesticides, wildlife and more.

Soil Suitability

Soils vary in their ability to support different uses. Some soils are more suitable than others for particular activities. Problems can arise when the soil type and proposed activities are incompatible.

Most soils found in wetland areas are poorly suited for development activities without alteration. The primary problem is often the excessive moisture in wetland soils.

Most wetland soils have water either at the surface or very close to the surface of the soil the majority of the year. The inherent water table must be lowered in order for the land to be suitable for housing or road and street construction. Many soils in wetland areas occur in low areas and along natural drainage patterns, even with water control systems in place. These areas have a tendency to flood.

Most soils in wetlands have a high organic content. When water control systems are established and they are exposed to air, they tend to dry out. These soil types are loosely cemented together, even more so when dried out. The low strength of these soil types cause these areas to have a low suitability for potential development.

Most wetland soils have low potential for septic tank absorption fields due mainly to the excessive wetness and potential for flooding. Often the size of the septic tank absorption field will be greatly increased even in areas with water control systems because of the slow permeability of these soils.

The type of soil that exists in wetland areas should be a factor when considering development in these areas.

Maintaining Ecological Relationships

Incorporating wetland areas into development patterns is the best way to maintain the ecological relationships between the wetlands and adjacent areas. Wetlands serve valuable purposes that were discussed earlier. Disrupting these natural relationships have the potential to begin a chain reaction of problems.

Incorporating wetlands into development patterns as open space, natural retention areas and natural water filtration systems allows for a much more aesthetic development and can be much less costly than constructing and maintaining expensive water control systems.

Use of wetlands as natural retention areas may not totally reduce the need for water control systems, but they have the potential to reduce the size of the retention facilities needed hereby reducing the cost while retaining an aesthetic advantage for the developing area.

Drainage Practices

Many serious or potentially serious drainage problems could be avoided by maintaining and incorporating natural drainage patterns and systems into development patterns. Water seeks the lowest areas and easiest path to rivers and streams and eventually the ocean. By attempting to "improve" these natural drainage patterns or ignore them by developing areas along natural drainage ways and floodplains, the potential for problems with water management are greatly increased.

The cost of constructing and maintaining water control systems, especially in natural drainage ways, can be prohibitive. The budgetary savings for a community that incorporates natural drainage patterns and systems rather than create artificial ones, can be substantial.

Another aspect that should be dealt with regarding drainage practices is the coordination of all government agencies that have jurisdiction in drainage matters.

Many times, agencies, because of lack of communications or disagreement as to the best management practices related to drainage, work in opposition to one another rather than establishing a coordinated effort aimed at similar goals. Interagency coordination saves time, money, effort and in almost all instances produces better and more functional results.

Land Cover

What is on the land, the land cover, influences the development pattern of an area. Land cover should be a consideration when planning local development patterns. Differences in topography, surface water and vegetation influence the land use patterns in a city.

Many localities have ordinances on the retention of native vegetation that influence development. Retaining native vegetation and incorporating it into new development rather than replanting exotic species is in most instances more cost beneficial, as well as aesthetic. Native vegetation has a better chance for survival and often consist of established adult trees and vegetation that would be cost prohibitive to replace. The maintenance cost on local species are much lower and the problems associated with replacing plants that do not survive is diminished.

Many cities allow alternatives and bonuses for developers retaining established native vegetation when developing and landscaping an area. Some cities require a certain percentage of a development remain in native vegetation. Many cities have a list of vegetative species that should be used in landscaping. These are usually plants that are native to the area or are known to grow well in the local climate. Some cities also have a list of exotic species that are considered noxious and are prohibited from use in landscaping. Many times, there are added requirements that the vegetation used in landscaping must grow to a certain size or survive a period of time. This makes developers responsible for the survival of the vegetation they choose for landscaping. This tends to promote a choice of vegetation that will have the best growth potential and survival rate.

Dredging and Filling

The most efficient way to damage wetlands and alter their function is to remove a portion of them, as in dredging out the wetlands or depositing fill in or on them.

Both dredging and filling activities tend to interrupt the existing hydrologic regime, damages and/or destroys existing vegetation and in most instances alters or destroys the function of the wetland area. Unless it is totally unavoidable, as when the alteration is undisputably in the

public interest and there is no alternative, dredging and filling in wetlands should be avoided.

There are instances where dredging and filling small portions of certain wetland types can be tolerated by the system. The Center for Wetlands at the University of Florida, through research, established that dredging or filling of 10% of most wetland types will not irrevocably destroy the function of these areas. All precautions must be taken during construction to assure that damage does not occur to the remaining wetlands while the allowable activity of the 10% is being done.

The best practice for most wetland types is to avoid dredge and fill activities within the wetlands or limit the activity to a small percentage of the area once it has been established that the wetland type can tolerate the activity and that the activity in question is unavoidable.

Solid Waste Disposal

Wetlands are, in almost all instances, not considered a good choice for a landfill or solid waste disposal site. The major limiting factors being the high water table and slow soil suitability normally associated with wetlands.

Depositing solid waste in wetlands is the equivalent of depositing fill in these areas. The potential problems that could be caused by flooding and seepage in these areas make siting of solid waste disposal sites in wetlands a very marginal choice at best. Upland areas with lower water tables and more suitable soil types appear to be a preferable choice.

Water Quality Management

Wetlands, especially freshwater wetlands, function as a natural purification system for water. This is one of the major arguments for maintaining wetland areas along natural drainage ways and floodplains. Wetlands tend to retain runoff from storms and filter out pollutants and nutrients before allowing water to enter rivers, streams and groundwater systems.

Retention and filtration of runoff is a growing problem at both local and state levels. With increase in impervious surfaces that accompany development also comes greater runoff and pollutant loads in the runoff.

Non-point source pollution (pollution caused by storm water runoff and the pollutants in pickups from the land, highways and other impervious surfaces) of our surface waters is fast becoming one of the major problems facing the Jacksonville area and the state. Increased growth brings increased pollution and a greater need to protect the existing water quality.

Presently, both the state and water management districts are attempting to deal with the retention and filtration of runoff. They are requiring, in certain instances through various rules, that water management systems hold runoff on the development site and by requiring the filtration of runoff before it is released into drainage systems and waterways.

Wetlands have a great potential to assist in the solution to this problem. They have the ability to retain large amounts of water, filter out pollutants, thereby cleansing the water before slowly releasing it. Wetlands perform this filtration service often at a more cost efficient rate than can man-made systems. They are also infinitely aesthetic, as well as have comparably little maintenance cost.

One of the few drawbacks in the use of wetlands as retention areas is their limited capacity. The available capacity may not satisfy state or local retention requirements. In many instances, they can be used in connection with man-made retention facilities, thereby reducing the size of the man-made facility needed. When utilized in this instance, wetlands may help provide the solution to a difficult problem.

Many wetland types also have the ability to be used as tertiary sewage treatment areas. The state presently allows the disposal of certain amounts of effluent from sewage treatment to be discharged into wetlands.

This use of wetlands has the potential to be a partial solution to the problem of discharging effluent into local streams and tributaries. Many of these receiving waters are already at capacity for effluent loading. The Florida Department of Environmental Regulation will only allow a certain amount of effluent to be discharged into state waters from sewage treatment facilities.

The Center for Wetlands at the University of Florida in Gainesville is currently experimenting with the use of wetlands as areas for effluent discharge and tertiary treatment. The major problem is calculating the ability of the wetland to absorb the effluent discharged into it. The use of wetlands to treat effluent has the potential, to a certain extent, to be a natural solution to a growing problem.

Pesticides and Herbicides

As mentioned previously, runoff from storms is a major contributor to pollution in waterways. Chemicals and pesticides used on the land also tend to find their way into rivers and streams carried by runoff. Chemicals and pesticides used in and around wetlands tend to have a negative impact on the biological components of wetland communities. Pesticides and herbicides tend to reduce the diversity of life forms in wetlands. Herbicides can affect the primary production of plant life in these areas. With the adverse affects of herbicides on plant life is a corresponding adverse affect on evapotranspiration and the ability of the wetland to enhance water quality, i.e., filter out pollutants and nutrients.

Guidelines for use of pesticides in and around wetland areas should be established. These may include more controlled use of agricultural chemicals and chemicals used on lawns and landscaping, application of pesticides only during dryer months and aerial application only under controlled conditions and circumstances.

Wildlife

Wetlands provide habitat and feeding grounds for various species of wildlife. Not all species are year-around residents of wetland areas, though numerous species interact in wetlands during some part of their life cycle. Wetland areas in urban settings offer a refuge for wildlife, as well as urban dwellers.

Selected Activities and Their Impact on Wetlands

All activities in wetlands have some affect on wetland parameters and natural functions. The major task is to determine what activities are compatible with which wetland types. Determination should be made as to the amount of alteration of wetlands that is acceptable while maintaining the integrity and function of the area. Major portions of this information was taken from the model wetland ordinance for Seminole County, Florida, compiled by the Center for Wetlands at the University of Florida.

The following is a comprehensive description of activities that may occur in the wetlands and the impact these activities have on wetlands and adjacent areas:

Production of Agricultural or Horticultural Crops

The production of agricultural crops within wetlands requires the alteration of water levels and the removal of naturally occurring vegetation. In most cases, water levels must be held at levels below the soil surface to facilitate the growth of plants that are not accustomed to the wetland conditions. In some cases, soils, because of their high organic matter content, are most suitable for cultivation, but oxidize away when exposed to air; further drawdown of water levels is usually required.

The production of many agricultural crops within wetlands affects all wetland parameters adversely, except recharge potential. The ability for water quality enhancement is lost since waters no longer flow through vegetation with subsequent uptake and removal of nutrients. There hydroperiod is adversely affected when wetlands are drained. With the loss of vegetative cover, the drawdown of water and the planting of agricultural crops that have higher evapotranspiration rates, evapotranspiration is increased. Normal and storm water storage capacity is adversely affected, since water levels must be held artificially low to accommodate agricultural crops. With lowered water tables and loss of storage capacity, recharge potential can be moderately reduced. All three biological parameters are adversely affected with the loss of naturally occurring vegetation. Wildlife that depend on the vegetation for food and cover must seek these elsewhere.

Both life form richness and gross primary production are lost with the removal of vegetation.

The production of agricultural or horticultural crops in areas adjacent to wetlands has moderate effects upon water quality enhancement, since runoff from agricultural areas may carry high nutrient loads; hydroperiod, since drainage in adjacent areas can both decrease and increase normal and storm water runoff flows; and, wildlife utilization because of loss of habitat, noise and alterations of hydroperiod associated with drainage in surrounding lands.

Harvesting of Timber and Wood Products

The harvesting of timber from wetland communities usually has only moderate effects on parameters of importance. Generally, adverse effects of machinery are relatively temporary, unless major drainage and the building of tramways or elevated roadways are done within the wetland. Wherever possible, the harvesting of timber should be carried out with a minimum amount of heavy machinery and no drainage of the wetland should be allowed prior to harvesting. The only communities that have enough commercially viable timber are cypress wetlands, some hydric hammocks and some mixed hardwood swamps. If selective harvesting is done within these systems, then enough vegetation remains after harvesting to carry on important functions.

If clear-cutting timber is done, effects are more adverse and total disruption of functions is possible. Since selective harvesting leaves much vegetation to carry out important functions and since the disruptions during the harvesting activity are only temporary, moderate effects result for water quality enhancement, hydroperiod and evapotranspiration; other parameters show nominal impacts. Wildlife utilization is adversely affected as wildlife for the most part leave the area after harvesting. Life form richness is adversely affected with the cutting of dominant tree species and the "trampling" of understory vegetation. Gross primary production is adversely affected, since some vegetation is harvested and much is trampled.

The harvesting of timber and wood products in areas adjacent to wetlands has moderate impacts on water quality enhancement, since vegetative cover is removed and runoff is increased, carrying higher loads of sediments, organic

matter and nutrients; on hydroperiod, due in part to increased runoff; and on wildlife utilization, since the removal of vegetation surrounding wetland may cause disruption of feeding, breeding and other activities of wildlife that may utilize these adjacent areas.

Cultivating Naturally Occurring Agricultural or Horticultural Products

The cultivation of naturally occurring vegetation requires that most wetland parameters remain in an unaltered condition, since the vegetation to be cultivated is native to these conditions. However, water quality enhancement may be moderately affected, as are hydroperiods, since cultivation within wetlands by necessity may limit these two parameters. Normal storage capacity is generally little affected, but storm storage capacity may be limited, since the storage of storm water runoff may conflict with cultivation in wetlands. Soil matrix is generally unchanged; thus, recharge potential is little affected. Evapotranspiration rates are not affected. Wildlife utilization, richness of life forms and gross primary production are moderately affected, since some vegetation is removed and frequent presence of people may interfere with wildlife use.

There are only nominal impacts associated with cultivating naturally occurring agricultural or horticultural products in areas adjacent to wetland communities.

Scenic, Historic, Wildlife or Scientific Preserves

The use of wetland communities for preserves has no adverse effects on parameters of importance. However, there may be some moderate effects concerning storm water storage capacity, since high water levels associated with storm water storage may conflict with intended use as a preserve. Wildlife utilization may be moderately affected due to the continual presence of people or high volumes of people that are associated with scenic and historic preserves.

Maintenance (Minor) or Emergency Repair to Existing Structures or Improved Areas

Minor repairs and/or emergency repairs are activities where use of structures does not change and/or there is no addition to the structure or improved area. Such activities will have little adverse impact beyond those impacts already experienced due to the presence of the structure. Wildlife use may be moderately affected if repairs require construction equipment, since the noise levels associated with construction activity may result in wildlife leaving the area.

Removing Natural Products of Wetlands in the Process of Recreation or Commercial Fishing, Aquaculture, Hunting or Trapping and Creation and Maintenance of Temporary Blinds

The use of wetland communities for the above is regulated by other agencies of the federal, state and local governments and, as such, generally has nominal adverse impacts on the parameters of importance.

Cleared Walking Trails Having No Structural Components

Cleared walking trails have a nominal impact on all parameters of wetland communities, since the area of cleared vegetation is minor when compared to the total area of the wetland community.

Timber Catwalks and Docks Less Than Four Feet Wide

Most of the impact associated with catwalks is a result of construction activities disrupting wetland structure and function. The trampling of vegetation and the disruption of normal wildlife activities are the most serious impacts during construction. Once construction is complete, small catwalks have only nominal impact on overall structure and function. Moderate impacts may be experienced by all three biological parameters, since construction activities may have impact causing wildlife to leave, altering life forms present and reducing gross primary production through trampling and shading.

Timber Catwalks and Docks
Greater Than Four Feet Wide

Large catwalks and docks may impede water flow, having moderate impact on water quality enhancement and evapotranspiration. Biological functions may be moderately impacted from both construction activities and the long-term presence of a large structure within the habitat.

Establishing Plantings

The planting of non-native wetland species requires that most wetland parameters be changed to accommodate plant species that cannot tolerate wet and/or submerged conditions. Thus, such plantings have the potential to moderately affect all physical parameters except recharge potential. In most cases, the planting of non-wetland species is accomplished by depositing fill material so that root systems are above water levels. If the plantings are to be wetland species, then the degree of impact is related to the areal extent of planting. Biological parameters may be moderately impacted, since the activity may cause wildlife to leave, alter life form richness and change gross primary production.

Substantial Restoration or Reconstruction
or Modification of Existing Structures

Major repair, modification or restoration is identified as a change in use, or modifications, repairs, etc., that cost at least ten percent of the physical value of the structure and do not increase the area of structure or improved area. Such activities may have adverse impact beyond those already experienced due to the presence of the existing structure. The magnitude of impact is related to the degree of modification, restoration, repair or reconstruction and the eventual use of the structure.

Construction or Modification of
Mosquito Control or "Drainage" Ditches

The construction of mosquito control and drainage ditches is specifically intended to lower water levels within wetland systems. Whether ditches are constructed within the wetland community or adjacent to the wetland, the net result is the same, but may differ in magnitude--all

physical parameters are adversely affected as is wildlife utilization and gross primary production. Life form richness is moderately affected, since drainage may result in succession to a more terrestrial community with subsequent changes in types of life forms and gross primary production.

Drainage ditches constructed in areas adjacent to wetlands alter quantity and quality of surface water flows, thus all physical parameters except evapotranspiration are moderately affected. In addition, wildlife utilization may be moderately affected, since the presence of heavy equipment and extensive alterations of physical parameters may drive wildlife from the area.

Operation of Motorized Vehicles Including Airboats

The operation of motorized vehicles within wetlands can have a major impact on wildlife, depending on the frequency of occurrence. Continual disturbance caused by high noise levels may drive wildlife from the area and interfer with normal breeding, feeding and other activities. Even in areas adjacent to wetlands, if noise generated by motorized vehicles is sufficient, wildlife can be adversely affected. Oil contamination of waters from exhaust of motorized boats can be significant, causing a degradation of water quality (the potential for moderate effect) and stress to water fowl.

The operation of motorized vehicles in areas adjacent to wetlands can have moderate impact on wildlife, since high noise levels in these adjacent areas can interfere with normal breeding, feeding and other activities.

Expansion of Existing Structures or Improved Areas

Expansion of existing structures is defined as any addition to structure that represents an increase in total enclosed floor space, roofed floor space, uncovered decks, or slabs in excess of ten percent of the existing flocr space or that cost of total of at least ten percent of the physical value of the existing structure, whichever is lower. The expansion of improved areas is defined as any activity such as the deposition of fill material, new road work, dredging, impounding, or the clearing of vegetation that represents an increase in area of "improvement" of at least ten percent of the area presently in the "improved state".

Such activities may have adverse impact beyond those already experienced because of the presence of the existing structure or improved area and the magnitude is related to the present and intended use of the structure or improved area and specific construction activities.

Dredging of Any Kind Other Than for Mosquito Control or Drainage Ditches

Dredging is defined as: to dig, gather or pull out soil, organic matter, peat or muck from the ground surface of below the ground surface within a wetland or adjacent area. Dredging of material from a wetland community has an overall adverse impact on all parameters by lowering water tables, interrupting surface water flows, reducing potential recharge and altering hydroperiod. In addition, depending on the degree of dredging, wildlife, life form richness and gross primary production are adversely affected.

Dredging in areas adjacent to wetlands has moderate impact on all parameters, the degree of impact depending on the magnitude of the dredging activity, topography and groundwater conditions present.

Discharge of Domestic, Agricultural or Industrial Waste (Pursuant to DER Permit) or the Discharge of Storm Runoff Waters From Adjacent Land

The discharge of effluents into wetland communities is still considered to be experimental by the Florida Department of Environmental Regulation and special permits from DER are required. It is felt that any discharges of sewage effluent should be permitted by the local government agency as well, since there are moderate impacts associated with such actions. All physical parameters except evapotranspiration are affected with the increase of water levels due to the quantity of water released and the increased nutrient load. Biological parameters are also affected, since increased nutrient loading generally increases gross primary production, changes types of life forms present, increases the utilization by wildlife and may change species of wildlife attracted to the wetland.

The discharge of wastes in areas adjacent to wetland has nominal impact upon all parameters, unless the discharge requires extensive alteration of the area in which case, one

is directed to all associated activities for the determination of specific impacts.

Bulkheading

Bulkheading is defined as the construction of any structure, partition, retaining wall, or earthen mound that interrupts, resists, directs, or shuts off the natural flow of surface water. Bulkheads can be used to accomplish either of two tasks, impound water or restrict the flow of water and either task has an adverse impact on most physical parameters of importance. The net result of bulkheading is an alteration of the quantity of water flow and water storage, thus adversely affecting water quality enhancement, hydroperiod and storage capacities. Impoundment results in too much water, lengthening hydroperiod, reducing potential water quality enhancement and affecting evapotranspiration. Deeper water and longer hydroperiods will severely stress some wetland vegetation not adapted to such conditions because each wetland community type has very specific water depth requirements and hydroperiods.

All biological parameters are moderately impacted, since bulkheading will not necessarily kill the community completely, but only cause shifts in floristic and wildlife species.

Bulkheads in areas adjacent to wetlands can reduce the total volume of surface water flow received, having an adverse effect on hydroperiod and storage capacity with moderate effects on water quality enhancement and potential recharge. In the same manner, biological parameters are moderately affected, since reduced surface water flows will cause shifts in species composition to species that are more tolerant to the dryer conditions.

Filling Other Than in Conjunction With Construction of Permitted Structures or Improved Areas and/or Greater Than 10% of Wetland Area Within Property Boundary

Filling is defined as the deposition of soil rock, riprap, organic matter, or any other material that results in raising the ground surface elevation. The net result of filling wetlands is the alteration of hydrologic conditions to such an extent as to create upland conditions (i.e., dry land) where wetland conditions prevailed. Thus, the impact is adverse on most physical parameters. Water quality

enhancement, hydroperiod, storage capacity and recharge potential are adversely affected, since ground levels are raised and wetland vegetation is eliminated. Evapotranspiration is moderately affected, since in some cases evapotranspiration may be increased due to changes in vegetation. Adverse effects are experienced by all biological parameters, since vegetation is eliminated and most physical parameters have been changed.

Filling in areas adjacent to wetlands has moderate impact on all physical parameters, since quality and quantity of surface water flows may be altered. The impacts associated with filling in adjacent areas on biological parameters are nominal, since this activity may have only indirect effects on these parameters.

Use of Any Pesticide or Herbicide

Pesticides and herbicides have negative impact on the biological components of wetland communities. Wildlife is adversely affected from the actions of pesticides and life form richness and gross primary production are adversely affected from the actions of herbicides. With the adverse effects of herbicides of plant life, there is a corresponding adverse effect on evapotranspiration corresponding adverse effect on evapotranspiration and water quality enhancement. Recharge potential is affected adversely, since the recharge of waters contaminated with pesticides and herbicides represents a serious threat to health safety. Other parameters show only nominal impacts.

The use of pesticides and herbicides in areas adjacent to wetlands may have adverse to moderate impacts depending on the runoff characteristics of these surrounding areas, thus impacts for water quality enhancement, evapotranspiration and biological parameters are moderate.

Installation of Utilities

Utilities used in this context refer to electrical transmission lines, sewage lines, storm water lines, potable water supply lines and associated access roads necessary for maintenance. Such utility systems in themselves cause moderate impact to wetland communities. Transmission lines have minor structures that touch the ground, thus, impact is relatively small. Other utility systems that are below ground have impact during construction, since there is much digging, however, once in place, the vegetation and original

contours reestablished, little long-term impact is realized. The major problem with utility systems traversing wetland communities is the access road that must accompany the system. Usually, fill material is dug directly from either the wetland site or an adjacent site and deposited to develop a roadbed. The digging and filling can cause major impact in itself and have long-term impact through impeding surface water flows, impounding waters and altering hydroperiods. In this respect, the roads are much like bulkheads.

Water quality enhancement is adversely impacted, as in hydroperiod and storage capacity. Evapotranspiration and recharge potential are moderately affected, since vegetation is not severely altered and the wetland can still act as a dry season recharge system.

All biological parameters are moderately impacted, since the roads are like bulkheads, not killing the community completely, but causing shifts in the floristic and wildlife composition of the wetland.

The roads that accompany utility systems and the system itself, when constructed in areas adjacent to wetland communities, generally do not impede surface water flows, thus have nominal impact. For the most part, roads on these dryer lands do not act as bulkheads, since they are not constructed specifically to surround a wetland community and can be designed and constructed with culverts in sufficient size and quantity to insure that waters are not impounded or impeded.

Filling Less Than or Equal to 10% of Wetland Area Within Property Boundary

Filling is defined as the deposition of soil, rock, riprap, organic matter, or any other material that results in raising the ground surface elevation.

If the area of fill is kept at 10% of the area of wetland, if every precaution is taken to minimize disturbance of surround unaltered areas and if roads and filled areas are designed so as not to impede, interrupt, or otherwise negatively affect surface water flows, impacts associated with a 10% reduction in wetland community areas will be moderate concerning all parameters as long as secondary impacts are minimized and great care is taken to insure that there is no long-term degradation of a larger area of the wetland.

Filling in areas adjacent to wetlands has moderate impact on all physical parameters, since quality of surface water flows may be altered. The impacts associated with filling in adjacent areas on biological parameters are nominal, since this activity may have only indirect effects on these parameters.

Clearing of Vegetation in Conjunction With the Construction of Permitted Structures

The clearing of vegetation within wetland communities where the area of clearing is not greater than 10% of the wetland within the property boundaries will have moderate impacts on all parameters for the community as a whole. A loss of 10% of the structure of any community will have some impact on physical and biological parameters, but in the long run, the associated stress will not be of sufficient magnitude to disrupt functional values completely. It is imperative, however, that the area of clearing not be greater than 10% and that the sum of all disturbed land, whether filled, cleared or otherwise altered, not be greater than 10% of the wetland area within the property boundary.

Greater care must be taken to insure that disruption of surrounding unaltered vegetation be minimized and that the clearing operations do not leave debris spoil or other matter that will negatively impact surface water flows in surrounding areas of the wetland community.

Clearing in areas adjacent to wetlands will have moderate impact on physical parameters, since the quality and quantity of surface water flows may be altered. The impacts associated with clearing in adjacent areas are nominal, since this activity may have only indirect effects on these parameters.

Construction of Permitted Structures

The construction of permitted structures will have moderate impact on all parameters, depending on the magnitude of construction activity. Impacts may be greatly reduced if structures have elevation on pilings rather than situated on filled lands. Associated improved areas that must be filled are the main source of negative impact. Long-term impact as a result of the maintenance of improved areas and runoff from lawns and parking lots can be minimized if filled areas are kept to a minimum. At no time

should the area of filled roads, access drives, docks, catwalks, decks and all other disturbed areas be greater than 10% of the wetlands within the property boundary.

The construction of permitted structures in areas adjacent to wetlands has nominal impact on all parameters. However, all other development activities associated with construction may have moderate to adverse impact and each development activity should be consulted separately.

Installation of Septic Tanks

The use of septic tanks in wetlands can have adverse impacts on the ability of the wetland to enhance water quality if concentrations of sewage are too large or if the vegetation and drainage characteristics of the wetlands are altered to such an extent that vegetation can no longer serve the function of nutrient uptake. This can occur either by vegetation removal or by channelization of water flow through the wetland. Other parameters are moderately affected, with the degree of impact related to the size and density of the septic tank.

Septic tanks in adjacent areas to wetlands have only nominal impact upon wetland parameters, with the exception of water quality enhancement and hydroperiod, which may be moderately affected because of increased nutrient loads and water inputs.

Installation of Storm Water Retention Basins

Because of the increased volume of water and because of the loss of vegetation and the dredging necessary to install such systems within wetlands, there is an adverse impact on all parameters. Most wetland communities act as "natural" storm water retention areas and filters, but these functions can be severely impaired if altered through dredging and/or channelization to "improve" water holding capacity or flow.

The most advantageous system is to construct retention basins adjacent to wetlands to collect runoff waters and then release them slowly to the receiving wetland. The impacts associated with the installation of such storm water systems in adjacent lands are for the most part nominal if runoff waters are not seriously degraded in quality such as those that may come from some industrial and commercial land uses. Water quality enhancement and hydroperiod are

moderately affected with the increased quantity of water and accompanying nutrients and other pollutants.

Storage, Use or Disposal of Any Hazardous Material

Because of the nature of wetlands as interface systems between uplands and both surface water and groundwater, the potential for serious impact resulting from hazardous materials use, storage or disposal within wetlands is very great. The potential for water quality enhancement, potential recharge, wildlife and gross primary production can all experience adverse impacts. Nominal effects are experienced by other physical parameters, since these activities do not impact them directly. Life form richness may be moderately affected, since such activities may cause loss of vegetation depending on the specific activity and material involved.

The use, storage and/or disposal of hazardous materials in areas adjacent to wetlands has the same impacts as these same activities within the wetland, since hazardous materials tend to have long life and great mobility when released in the environment.

Solid Waste Disposal

The use of wetland communities and adjacent areas for the disposal of solid wastes can have obvious adverse effects on the structure of function of these communities. The deposition of potential hazardous material within or adjacent to wetlands, as discussed in the previous activity, can have severe impact upon surface water and groundwater systems. In addition, dredging for landfill purposes destroys all wetland functions when done within the wetland and can have adverse impacts on physical parameters when done in adjacent areas. Lowered water levels, loss of surface water supplies (in some cases), and increases in surface water runoff (in other cases) all contribute to adverse impacts.

Since the materials deposited in solid waste disposal areas are not entirely made up of hazardous materials, the impacts associated with the use of adjacent areas as waste disposal sites are not as severe as mentioned concerning the disposal of hazardous materials; as a consequence, moderate impacts are expected for recharge potential and wildlife utilization. Moderate impacts are also expected for normal

and storm water storage capacity, as the activities of dredging and filling in adjacent areas may increase surface water runoff and/or decrease groundwater flows.

RECOMMENDED BEST MANAGEMENT PRACTICES BY TYPE OF WETLAND

RECOMMENDED BEST MANAGEMENT PRACTICES BY TYPE OF WETLAND

Introduction

This section is a guide to what is considered best management practices for land use in and adjacent to wetlands. The wetlands discussed in this guide are the wetland types referred to in the 2005 Comprehensive Plan for Jacksonville. It is intended that this guide be used in making present and future land use decisions regarding development in and adjacent to wetlands.

Freshwater Marsh (Shallow and Deep Water)

Shallow and deep water marshes vary in dominant plant species, but both marshes have water of different depths present all year round. The majority of activities are incompatible within freshwater marsh systems. Some activities can be tolerated if certain precautions are taken to safeguard the function of the marsh.

The following activities are generally considered to be incompatible with maintaining the functional integrity of freshwater marshes:

- Production of agricultural or horticultural crops.
- Construction or modification of mosquito control or drainage ditches.
- Dredging of any type.

- Construction of bulkheading fitting an area greater than 10% of the property.
- Use of pesticides or herbicides.
- Installation of utilities.
- Installation of storm water retention basins.
- Storage - use or disposal of any hazardous material.
- Solid waste disposal sites.

The majority of the preceding activities cause an interruption or severe change in the hydrologic regime that will damage or destroy the function of the marsh.

Both dredging and filling activities not only affect the hydrologic regime of the marsh, but also destroy the vegetation and disrupt the soil layers.

Soil and hazardous waste disposal also tends to disrupt the vegetation as well as the hydrologic regime.

There are also several activities that are compatible with freshwater marshes and can be pursued with little adverse affect on these wetlands. They include:

- Use of marshes for scenic, historic, wildlife or scientific preserves.
- Minor maintenance or emergency repair to existing structures or improved areas.
- Removing natural products of wetlands in the process of recreation or commercial fishing, aquaculture, hunting or trapping.
- Cleared walking trails having no structural components.
- Timbered catwalks and docks less than and greater than 4 feet wide.

The following are activities that are compatible with freshwater marshes as long as certain precautions and criteria are followed when engaging in these activities.

The cultivation of naturally occurring agricultural or horticultural products is an acceptable activity in marshes as long as the following criteria are met:

- There shall be no construction of drainage ditches, berms, bulkheads or filling of any kind.
- There shall be no diversion or impoundment of water.
- There shall be no clear-cutting of vegetation. Harvesting or cutting of vegetation shall not exceed 10% of the area per year. Areas previously harvested shall be revegetated and left untouched for not less than 10 years.
- Establishing planting within marshes is compatible with the marsh as long as certain criteria are met. These are:
    - The planting shall not to exceed 10% of the wetland area within the property boundary.
    - There will be no drainage of surface or ground water.
    - A buffer 100 feet wide of natural unaltered vegetation will be left between the areas to be planted on any surface water or natural drainageway.
- Substantial restoration, reconstruction or modification of structures and improved areas require adherence to certain criteria before these activities can be take place in freshwater marshes. These include:
    - Roads or dikes must be designed in such a way that natural surface water flow is not impounded or impeded.
    - Total filled or improved areas shall not exceed 10% of the wetland within the property boundary.
    - Use of heavy equipment shall be minimized.
- Caution must also be exercised in the operation of motorized vehicles including airboats. When these

activities take place in marshes, certain criteria should be followed:

- The operation of terrestrial and all terrain vehicles (i.e., jeeps, swamp buggies and the like) shall be prohibited.
- Operation of airboats shall occur only during the normal rainy or high water season (usually May - October).

- Expansion of existing structures in marsh areas must also meet certain criteria.
  - Total filled area (including what exists) shall not exceed 10% of the wetland within the property boundaries.
  - All roads or other improvements shall not impede, interrupt or impound surface or runoff water.
  - The use of heavy equipment shall be minimized.
  - All additions or new structures shall conform to flood prone regulations. In the absence of these regulations, structures should be built 3 feet above established high water lines or 9 feet from the natural ground surface.

- Discharge of agricultural, domestic or industrial waste into marshes can be tolerated by the system under certain circumstances and if the following criteria are met:
  - When possible, it is preferable that wetlands used for receiving domestic and agricultural waste water be isolated wetlands.
  - Discharge of industrial effluent shall be isolated wetlands only. Wetlands with a hydrologic connection shall not be used.
  - There shall be no discharge of industrial waste containing concentrations of heavy

metals or toxic substances in excess of established state and federal guidelines into marsh areas.

- Discharge of agricultural wastewater containing pesticides or herbicides in excess of state or federal requirements shall be prohibited.

- The capacity of the marsh to receive effluent shall be calculated to determine the amount of effluent the marsh is capable of retaining and not alter seasonal fluctuations. (These areas should not receive excess water in the wet season or dry season.) Water levels should not be increased more than 10% above normal.

- Marshes with hydrologic connections used for agriculture and domestic discharge should have discharge points located so the effluent is retained within the wetland for the necessary time needed to filter and remove pollutants.

- Discharge of waste and stormwater runoff should not be channelized. Systems should be designed and utilized so waste water is properly filtered and exposed to the natural cleansing process.

- The discharge of excess storm water runoff shall not be excessive in volume or velocity. Where volume or velocity can be expected to be excessive after a rain fall event, retention ponds shall be constructed on uplands to receive storm water runoff, allow some settling of sediments and slowly release the waters to the wetlands.

- The discharge of storm water runoff from industrial or commercial land uses shall first be to retention basin (pond) constructed on uplands and seeded or vegetated with wetland species. Storm waters may then be released to wetlands.

- Filling an area less than or equal to 10% of the

wetland within the boundary of the property can be compatible with marsh system if certain criteria are followed:

- Filling shall be in conjunction with the construction of permitted structures and associated access roads, yards and septic tanks only.

- The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area of structures shall not exceed 10% of the wetland within the property boundary.

- The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material, or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

- Any filled roads or improved areas shall neither impound nor impede surface water flows within wetlands. Roads and other improved areas shall be constructed so as to not impede, interrupt or impound normal or storm surface water flows.

- Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation, and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Timbered catwalks wider than 4 feet can be compatible with marsh systems as long as certain criteria are followed. They include:

  - The structure and foundation system of the

catwalk or dock shall be designed so as not to impede, interrupt or impound surface water flows.

- Construction shall take place only during the dry season (usually from October through May).

- The use of heavy equipment shall be minimized. Any clearing of vegetation shall be confined to the immediate right-of-way of the catwalk or dock and shall not exceed a width equal to the width of the catwalk or dock plus five (5) feet to either side.

- There shall be no temporary filling of the wetland for construction or any other purposes except in those wetlands where filling is permitted.

- All pilings shall be driven to desired depth and shall not be jetted into the soil.

- Clearing vegetation in conjunction with the construction of permitted structures can be an activity that is compatible with marshes, as long as these criteria are followed:

  - The activity shall be carried out during the normal dry season (usually October through May) only.

  - The area of clearing and all other areas of fill, access roads, docks, catwalks, structures and improved areas shall not exceed 10% of the wetland within the property.

  - All materials that are cleared from the wetland shall be removed from the site and not piled or windrowed within the wetland community.

  - Precautions shall be taken to minimize impacts to surrounding vegetation. During clearing operations turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for

a period of time sufficient for stabilized conditions to develop in the cleared area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between cleared areas and any surface water body.

- Clearing shall be carried out only in conjunction with the construction of permitted structures.

Mixed Hardwood Swamp

These areas are basically forested wetlands, dominated by a mixture of deciduous hardwood trees.

There are several activities that are not compatible with the maintenance of the natural function and integrity of this type of wetland. They include:

- Production of agricultural and horticultural crops.
- Harvesting of timber and wood products.
- Construction or modification of mosquito control systems or drainage ditches.
- Dredging of any kind, with the exception of mosquito control or drainage ditches.
- Use of pesticides and herbicides.
- Installation of storm water retention areas.
- Storage, disposal or use of hazardous materials.
- Solid waste disposal sites.

The majority of these activities will have an adverse affect on the hardwood swamps because of the alteration to the hydrologic regime of the area.

Dredging, filling and use of pesticides will damage and destroy vegetation and in some instances the general quality and number of life forms in the area.

There are also large numbers of activiites that can be conducted in hardwood swamps without adversely affecting the area. These include:

- The use of hardwood swamps for scenic, historic, wildlife or scientific preserves.
- Minor maintenance or repair of existing structures.
- Removal of natural products in conjunction with recreation, commercial fishing, hunting, trapping and aquaculture.
- Cleared walking trails with no structural components.
- Timbered catwalks greater than 4 feet wide and less than 4 feet wide.
- Operation of motorized vehicles.

There are also various activities that are allowable in hardwood swamps as long as certain criteria are adhered to and certain performance standards are followed. These include the following:

- Cultivation of naturally occurring vegetation is an acceptable activity as long as certain criteria are followed:
    - There shall be no construction of drainage ditches, berms, or bulkheads nor filling of the area.
    - There shall be no diversion nor impoundment of water.
    - There shall be no clear-cutting of vegetation. Harvesting or cutting of vegetation, if necessary, should be done at a rate of 10% of the total wetland area per year and those areas previously harvested shall be reseeded or revegetated and left untouched for a period of not less than 10 years.
- Established plantings are an acceptable activity in hardwood swamps as long as they meet certain per-

formance criteria:

- The area of planting shall not exceed 10% of the area of each wetland or wetland area affected within the property boundary.
- There shall be no drainage of surface water or ground water.
- A buffer strip one hundred (100) feet wide of natural, unaltered vegetation shall be left between the established planting and any surface water body or natural drainage system.

- Substantial restoration, reconstruction or modification of existing structures and improved areas can be an activity that is compatible within hardwood swamps as long as certain criteria are followed:
  - Any reconstruction, restoration or modification of filled roads or dikes must be designed such that natural surface water flows are not impounded or impeded.
  - Total filled or improved area shall not exceed 10% of the wetland within the property boundary.
  - The use of heavy equipment shall be minimized.

- Expansion of existing structures or improved areas can be compatible within hardwood swamps, as long as established criteria are followed:
  - Total filled areas (including existing filled areas) shall not exceed 10% of the wetland area within the property boundaries.
  - Any filled roads or other improved areas shall not impede or impound water flow within the wetland.
  - The use of heavy equipment shall be minimized.
  - All additions or new structures shall be designed to conform to flood-prone regu-

lations. In the absence of these regulations, structures shall be constructed so that the floor level is 3 feet above established high water elevations or eight feet above the ground.

- The discharge of domestic, agricultural, industrial waste and storm runoff is acceptable in hardwood swamps as long as certain precautions and criteria are met:

    - When possible, it is preferable that wetlands used for receiving domestic and agricultural waste water be isolated wetlands.

    - Discharge of industrial effluent shall be to isolated wetlands only. Wetlands with a hydrologic connection shall not be used.

    - There shall be no discharge of industrial waste waters containing concentrations of heavy metals or toxic substances that exceed state and federal guidelines.

    - There shall be no discharge of agricultural waste waters containing pesticides and herbicides that exceed state and federal guidelines.

    - The capacity of the hardwood swamp to receive effluent shall be calculated to determine the amount of effluent the swamp can assimilate and not alter its natural seasonal wet and dry cycle. Water levels should not be increased 10% above normal.

    - Hardwood swamps with direct hydrologic connections to surface waters used for agriculture and domestic effluent discharge should have discharge points located so that effluent is retained within the wetland for the necessary time needed to filter and remove pollutants.

    - Discharge of waste and storm water runoff should not be channelized. Systems should be designed and utilized so wastewater flows

through wetlands with sufficient retention or residence time so water is properly filtered and exposed to the natural cleansing process.

- The discharge of excess storm water runoff shall not be excessive in volume or velocity. Where volume or velocity can be expected to be excessive after a rainfall event, retention ponds shall be constructed on uplands to receive storm water runoff, allow some settling of sediments and slowly release waters to the wetland.

- The discharge of storm water runoff from industrial or commercial land uses shall first be to a retention basic (pond) constructed on uplands and seeded or vegetated with wetland species. Storm waters may then be released to wetlands.

- Bulkheading within hardwood swamps can be a compatible activity as long as certain criteria are followed:

  - Bulkheads shall be constructed for the purposes of protecting structures or improved areas from potential flood waters only. All other purposes are deemed inappropriate.

  - Bulkheads that impound waters, raising water levels within the wetland above normal storm water storage levels as determined by the County Engineer shall be prohibited.

  - Bulkheads constructed for the purposes of diverting, impeding, or excluding natural surface water inflow to a wetland or outflow from a wetland shall be prohibited.

  - The use of heavy equipment during construction shall be minimized.

- The installation of utilities can be an acceptable activity within hardwood swamps as long as certain criteria are adhered to:

  - The installation of utilities including roads shall conform to <u>all</u> performance criteria

given for specific activities that are associated with the installation.

- Where filling, dredging and/or bulkheading are incompatible, utility systems and roads shall be elevated so the natural hydrologic regime is not interrupted.

- Areas cleared as rights-of-way or easements shall not be greater than 10% of the wetland area within the property boundary.

- In wetlands where dredging, filling or bulkheading is compatible subject to meeting certain criteria, the utility system or road shall not impede, interrupt or impound normal surface water flows. In these wetlands, utility systems and roads shall be constructed so as not to impede, interrupt or impound normal or storm surface water flows.

- Every care shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation, and/or erosion shall be used at all times, and left in place for a period of time sufficient for stabilization of the area.

- Filling an area less than or equal to 10% of the wetland system will not unduly disrupt the function of the system as long as proper caution and mitigation procedures are followed:

    - Filling shall be in conjunction with the construction of permitted structures and associated access roads, yards and septic tanks only.

    - The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area of structures shall not exceed 10% of the wetland within the property boundary.

    - The fill material shall be "clean fill" and

not garbage, refuse, toxic or contaminated material, or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

- Any roads or improved areas shall neither impound or impede surface water flows within wetlands. Roads and other improved areas shall be constructed so as to not impede, interrupt or impound normal or storm surface water flows.

- Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

- A buffer strip fifty (50) feet wide of natural, undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Clearing vegetation in conjunction with permitted construction can be an allowable activity within hardwood swamps as long as certain performance standards are met:

  - The activity shall be carried out during the normal dry season (usually October through May) only.

  - The area of clearing and all other areas of fill, access roads, docks, catwalks, structures and improved areas shall not exceed 10% of the wetland within the property.

  - All materials that are cleared from the wetland shall be removed from the site and not piled or windrowed within the wetland community.

  - Precautions shall be taken to minimize impacts to surrounding vegetation. During

clearing operations turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

- A buffer strip fifty (50) feet wide of natural, undisturbed vegetation shall be maintained between cleared areas and any surface water body.

- Clearing shall be carried out only in conjunction with the construction of permitted structures.

- Construction of permitted structures are those outlined in the local development code and they are an allowable use in hardwood swamps as long as certain criteria are met:

    - All improved areas (including access roads, parking lots, docks, catwalks, area of structure, yards, cleared areas, retention basins, etc.) shall be no greater than 10% of the area of the wetland within the property boundaries.

    - If the wetland is included in lands designated as "flood-prone area", all conditions, provisions and restrictions of the flood-prone classification ordinance shall apply in addition to the performance criteria contained herein and the conditions, provisions and restrictions of the flood-prone classification ordinance shall take precedence if it is more restrictive.

    - If there is no flood-prone classification, all structures will be constructed so that the finished floor elevation is at least 3 feet above the established highwater elevations or the distance above natural ground is 8 feet.

    - The use of heavy equipment during construction shall be minimized.

- The drainage system for the improved area shall comply with the conditions, restrictions and provisions of the drainage system design standards for the locality.

- Access roads and other improved areas shall be designed and located so as not to impede, interrupt, or impound normal and storm surface water flows, unless the impoundment is wholly within the improved area and used for the purposes of a storm water retention basin.

- All retention basin requirements shall adhere to state and/or local rules, whichever is more stringent. If the retention basin is constructed within the wetland, it is considered to be part of the improved area, and said area, including all roads, parking lots, structures, lawns, cleared areas, etc., shall not exceed 10% of the wetland within the property.

- The installation of septic tanks is an appropriate activity as long as certain standards are met and maintained:

    - Septic tanks shall conform to all provisions of Duval County Health Department Regulations and/or applicable state regulations.

    - Septic tanks shall either be elevated on filled areas such that the lowest point of the drain field is a minimum of three (3) feet above the normal high water level in the wetland or be located on suitable upland soils having proper percolation rates, and wastes shall be pumped from a holding tank to this upland septic tank and drain field.

    - The maximum number of septic tanks within wetland areas shall be one (1) per five (5) acres.

All but a few of the activities previously discussed are considered allowable in areas adjacent to hardwood swamps. These few activities are allowable also, as long as certain precautions are taken and certain standards are met.

- Construction or modification of mosquito control or drainage ditches upland or adjacent to hardwood swamps must meet certain criteria:
    - The ditches can be no more than 3 feet deep, measured from the ground surface.
    - Discharge from drainage or mosquito control ditches into surface waters and streams shall be discouraged. Discharge into compatible wetlands as properly designed retention ponds is preferable.
    - The use of herbicides and pesticides in mosquito control ditches will be discouraged.
- Dredging other than for mosquito control can be a compatible activity adjacent to hardwood swamps as long as certain criteria are met:
    - Dredge areas shall not exceed 10% of the wetlands in the property boundaries.
    - Disposition of dredge materials shall follow the performance criteria of the wetland it is adjacent to.
    - There shall be no direct hydrological connection from dredged area to surface water bodies.
    - When an outfall from a dredge area is necessary, the outfall shall empty into a properly designed retention pond. This pond is considered part of the 10% use area.
- Bulkheading is also an activity that is allowable adjacent to hardwood swamps, as long as certain standards are met:
    - Bulkheading will not be allowed if it diverts water directly into wetlands. The water should be released to simulate conditions prior to development.

Cypress Swamps/Domes and Ponds

Cypress domes and ponds are wetland areas that can be used and included in many activities. Again, some activities tend to alter the hydrologic regime and function of these particular wetlands. Other activities can take place with certain mitigation procedures and still many other activities are perfectly compatible with these areas.

There are certain activities that are considered incompatible with the function of the cypress dome systems and are not allowable uses. They include:

- Production of agricultural or horticultural crops.
- Construction or modification of mosquito control or drainage ditches.
- Dredging of any kind.
- Filling other than in conjunction with permitted structures or areas and filling more than 10% of the wetlands in property boundaries.
- Uses of pesticides or herbicides.
- Installation of storm water retention basins.
- Solid waste or hazardous waste sites.

There are also a large number of activities that are considered compatible with cypress swamps. These include:

- Scenic, historic, wildlife or scientific preserves.
- Minor maintenance of existing structures and improved areas.
- Removal of natural products in conjunction with recreation, commercial fishing, hunting and trapping.
- Cleared walkway trails having no structural components.

- Timbered catwalks and docks less than 4 feet wide.

- Operation of notorized vehicles.

The majority of activities normally associated with development are allowed in cypress domes and pond areas as long as certain criteria and standards are met. This is an effort to use these wetland areas while retaining their function and ecological value.

The activities that can be compatible with these areas as long as mitigation procedures are practiced include:

- Harvesting of timber and wood products. The following criteria must be met:

    - No drainage of the wetland.

    - Harvesting shall occur only in the dry season (fall and winter).

    - Heavy equipment will be discouraged.

    - Only select cutting of timber. No clear-cutting will be allowed. Only trees over 8 inches at breast height can be removed.

- Cultivating naturally occurring agricultural products is allowable, as long as certain criteria are met. They include:

    - No construction of drainage ditches, berms, bulkheads or any filling will be allowed.

    - There shall be no diversion or impoundment of water.

    - No clear-cutting of vegetation. Harvesting or cutting of vegetation when necessary will be at 10% of the wetland per year. Areas previously cut will be reseeded, if applicable, and left untouched for at least 10 years.

    - Timbered catwalks wider than 4 feet are allowable uses in cypress swamps as long as the following criteria are adhered to:

- The structure and foundation of the catwalk will not impede, interrupt or impound surface water flow.
- Construction will take place only during the dry season (normally, May to October).
- Heavy equipment will be minimized. Clearing of vegetation will be confined to 5 feet on either side of the catwalk or dock.
- Pilings will be driven to the soil and not jetted in the ground.

- Established plantings are also an acceptable use as long as certain criteria are met. They include:
  - Planting shall not exceed 10% of the wetland within the property boundary.
  - There shall be no drainage of surface or ground waters.
  - A buffer strip of 100 feet of natural vegetation shall be left between the project and any surface water or natural drainage system.
- Substantial restoration, reconstruction or modification of existing structures and improved areas can be allowed in cypress domes as long as certain procedures are followed:
  - Any reconstruction or modification of filled roads and dikes must be designed so as not to impede or impound surface water flow.
  - Total improved area shall not exceed 10% of the wetland within the property.
  - Use of heavy equipment shall be minimized.
- Expansion of existing structures or improved areas is allowable in cypress wetlands as long as the proper procedures are adhered to:

- The total area filled cannot exceed 10% of the wetland.
- Any construction, i.e., filled roads or improved areas cannot impound or impede surface water flow.
- Use of heavy equipment shall be minimized.
- All structures will be designed to conform to flood-prone regulations. Where these are absent, the structure shall be elevated 3 feet above the established high water mark or 7 feet above the natural ground level.

- Discharging domestic, agricultural, industrial, storm water runoff from adjacent land into cypress swamps is an allowable activity as long as certain criteria are met:
  - Cypress swamps receiving this discharge should be isolated wetlands preferably.
  - Discharge of industrial waste water into cypress wetlands that are hydrologically connected is prohibited.
  - There will be no discharge into wetlands of industrial waste water that exceeds state, local and federal standards.
  - There will be no discharge of agricultural waste water into cypress wetlands if the amounts of pesticides or herbicides exceed state, local or federal guidelines.
  - The capacity of the wetland to receive effluents should be calculated to determine the amount of effluent the wetland is capable of retaining and still not alter seasonal fluctuations. (These areas should not receive excess water in the wet or dry season). Water levels should not increase more than 10% above normal.

- Cypress swamps with hydrologic connections used for agriculture and domestic discharge should have discharge points located so the effluent is retained

within the wetland for the time needed to filter and remove pollutants.

- Discharge of waste and storm water runoff should not be channelized. Systems should be designed and utilized so waste water flows through wetlands with sufficient retention or residence time so water is properly filtered and exposed to the natural cleasing process.

- The discharge of waste water and storm water runoff shall be constructed so as to avoid the channelization or establishment of a direct conduit such that waste water flows through the wetland with sufficient residence time and/or exposure to vegetation.

- The discharge of excess storm water runoff shall not be excessive in volume or velocity. Where volume or velocity can be expected to be excessive after a rainfall event, retention ponds shall be constructed on uplands to receive storm water runoff, allow some settling of sediments and slowly release the waters to the wetland.

- Bulkheading activities in cypress swamps can be a compatible activity as long as these criteria are followed:

  - Bulkheads shall be constructed for the purpose of protecting structures or improved areas from potential floodwaters only. All other purposes are deemed inappropriate.

  - Bulkheads that impound waters, raising water levels within the wetland above normal storm water storage levels as determined by the County Engineer shall be prohibited.

  - Bulkheads constructed for the purposes of diverting, impeding or excluding natural surface water inflow to a wetland or outflow from a wetland shall be prohibited.

  - Bulkheads shall not be constructed that will constrict the flow of water and thus increase flow velocity within wetlands.

- The use of heavy equipment during construction shall be minimized.

- The installation of utilities can be an acceptable activity in cypress wetlands as long as certain criteria are followed:

  - The installation of utilities including roads shall conform to all performance criteria given for specific activities that are associated with the installation.

  - Where filling, dredging and/or bulkheading are incompatible, utility systems and roads shall be elevated so the natural hydrologic regime is not interrupted.

  - Areas cleared as rights-of-way or easements shall not be greater than 10% of the wetland area within the property boundary.

  - In wetlands where dredging, filling or bulkheading is compatible subject to meeting certain criteria, the utility system or road shall not impede, interrup or impound normal surface water flows. In these wetlands, utility systems and roads shall be constructed so as not to impede, interrupt or impound normal or storm surface water flows.

  - Every care shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop in the disturbed area.

- Filling an area less than or equal to 10% of the wetland within the property boundary in conjunction with permitted structures is an allowable use of cypress wetlands as long as certain criteria are met:

  - Filling shall be in conjunction with the

construction of permitted structures and associated access roads, yards and septic tanks only.

- The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area of structures shall not exceed 10% of the wetland within the property boundary.

- The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material or any other material that through the actions of the soil water leaching may cause a degradation of surface water and groundwater quality.

- Any filled roads or improved areas shall neither impound nor impede surface water flows within wetlands. Roads and other improved areas shall be constructed so as to not impede, interrupt or impound normal or storm surface water flows.

- Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Clearing vegetation in conjunction with permitted construction can be an allowable activity as long as certain performance standards are met:

  - The activity shall be carried out during the normal dry season (usually October through May) only.

  - The area of clearing and all other areas of fill, access roads, docks, catwalks, struc-

ture and improved areas shall not exceed 10% of the wetland within the property.

- All materials that are cleared from the wetland shall be removed from the site and not piled or windrowed within the wetland community.

- Precautions shall be taken to minimize impacts to surrounding vegetation. During clearing operations turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop in the cleared area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between cleared areas and any surface water body.

- Construction of permitted structures can be a compatible activity in cypress wetlands as long as certain standards are adhered to:

    - All improved areas (including access roads, parking lots, docks, catwalks, area of structure, yards, cleared areas, retention basins, etc.) shall be no greater than 10% of the area of the wetland within the property boundaries.

    - If the wetland is included in lands designated as "flood-prone area", all conditions, provisions and restrictions of the flood-prone classification ordinance shall apply in addition to the performance criteria contained herein and the conditions, provisions and restrictions of the flood-prone classification ordinance shall take precedence if it is more restrictive.

    - If there is no flood-prone classification system, all permitted structures will be constructed so that the finished floor elevation is at least 3 feet above the

established high water line or 8 feet above the ground level.

- The use of heavy equipment during construction shall be minimized.

- The drainage system for the improved area shall comply with the conditions, restrictions and provisions of the drainage system design standards for the locality.

- Access roads and other improved areas shall be designed and located so as not to impede, interrupt or impound normal and storm surface water flows, unless the impoundment is wholly within the improved area and used for the purpose of a storm water retention basin.

- All retention basin requirements shall adhere to state and/or local rules, whichever is more stringent. If the retention basin is constructed within the wetland, it is considered to be part of the improved area and said area, including all roads, parking lots, structures, lawns, cleared areas, etc., shall not exceed 10% of the wetland within the property.

- The installation of septic tanks is a compatible activity within cypress swamps as long as various criteria are met:

  - Septic tanks shall conform to all provisions of Duval County Health Department Regulations as well as applicable state regulations.

  - Septic tanks shall either be elevated on filled areas such that the lowest point of the drain field is a minimum of three (3) feet above the normal high water level in the wetland or be located on suitable upland soils having proper percolation rates and wastes shall be pumped from a holding tank to this upland septic tank and drain field.

  - The maximum number of septic tanks within wetland areas shall be one (1) per five (5) acres.

Activities that are conducted adjacent to wetlands have an impact on these areas. Most of the previously discussed activities are compatible activities and uses of upland areas adjacent to cypress swamps. Some of these activities must follow certain performance standards to mitigate the impact they will have on the wetlands:

- Construction or modification of mosquito control of drainage ditches are a compatible activity adjacent to cypress swamps as long as the following criteria are met:
  - Ditches are no deeper than 3 feet from ground surface.
  - Discharge from ditches will be into existing compatible wetlands or properly designed retention ponds, discharge into surface waters or streams will be minimized.
  - The use of herbicides and pesticides in ditches will be prohibited adjacent to cypress ponds/domes.
- Dredging other than for mosquito control is an allowable activity in areas adjacent to cypress swamps, as long as established criteria are met, such as:
  - Dredged areas will not exceed 10% of the wetland within the property boundary.
  - The deposition of the dredged material must conform to all performance criteria related to filling or bulkheading within or adjacent to wetlands.
  - There shall be no direct surface water connection from dredged or excavated areas to surface water bodies or open water streams.
  - If an outfall from dredge areas is needed to remove storm waters, the outfall will be into a properly constructed retention basin so the water may be filtered. This basin will be considered part of the 10% of allowable area for dredging.

- Bulkheading is also an allowable use adjacent to cypress wetlands, but as with bulkheading activities within cypress wetlands, certain criteria must be met to properly protection the area. These include:
    - The prohibition of bulkhead construction for the purpose of diverting, impeding or excluding natural surface water from entering wetlands. Bulkheading constructed as part of a drainage project shall be designed so as to release water into wetlands as close as possible to the predevelopment rate.
    - Bulkheading shall not result in channelization of water.
- Filling other than in conjunction with permitted construction and more than 10% of the wetland area may be an allowable activity adjacent to cypress domes/ponds as long as certain criteria are met:
    - The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material, or any material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.
    - The filled area shall not divert, impede or exclude natural surface water runoff into or out of a wetland.
    - The filled area shall not result in the channelization of surface water flow into a wetland.
    - Precautions shall be taken to insure that erosion and subsequent sedimentation of the fill material shall not occur within any wetland.
    - A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

Use of pesticides and herbicides can be an allowable activity adjacent to cypress swamps as long as proper care is taken. This includes:

- Application of pesticides or herbicides shall occur only during the normal dry season (usually from October through May).

    - Equipment for the application of the pesticide or herbicide shall be chosen so that it best directs the chemical to the target organism.

    - Every precaution shall be taken to avoid the direct contamination of surface water during the application and during the mixing and preparation of the chemical.

    - Aerial application or mist blowing of pesticides or herbicides shall be avoided.

Bayheads and Bogs

These areas occur in flatwood depressions with hign water tables and little water level fluctuation. The soils in these areas are constantly water logged and subject to periodic flooding. Bayheads contribute to peat production and are thought to succeed the bog stage in the flatwood pond succession.

Like other wetland areas, bayheads and bogs have a natural balance that needs to be maintained in order for them to survive and function properly.

There are many activities that are compatible with the function of these areas. There are others that are not and should be avoided. There are still other activities that can be compatible in and near bayheads and bogs as long as certain precaution is taken and reasonable criteria for development are adhered to.

There are activities that because of their nature or the amount of alteration required in bayheads and bogs would not be compatible with these areas and should be practiced in areas more suitable where less alteration to the natural system will be required. These activities include:

- Production of agricultural or horticultural crops.
- Dredging of any kind other than for mosquito control or drainage ditches.
- Use of pesticides or herbicides.
- Installation of storm water retention basins.
- Siting of solid waste disposal activities.

There are also a large number of various activities, that when undertaken with due care, can be compatible that when undertaken with due care, can be compatible uses in this wetland type. These activities include:

- Cultivating naturally occurring agricultural or horticultural products.

- Scenic, historic, wildlife or scientific preserves.
- Minor maintenance or repair to existing structures or improved areas.
- Removing of natural products of wetlands in conjunction with recreation, commercial fishing, aquaculture, hunting or trapping.
- Cleared walking trails having no structural components.
- Timbered catwalks wider than or narrower than 4 feet.
- Operation of motorized vehicles.

There is also a large group of activities that are compatible within these areas as long as the proper mitigation procedures are adhered to. These include:

- Harvesting of timber and wood products. This activity may occur in bayheads and bogs as long as:
  - There shall be no drainage of the wetland.
  - Harvesting shall be carried out during the dry season (usually from October through May).
  - The use of heavy equipment shall be discouraged.
  - There shall be no construction of tramways nor roadways that require fill in cypress domes.
  - Harvesting shall be carried out as selective cutting of timber rather than clear-cutting, where trees of 8 inches or greater dbh (diameter at breast height) are harvested.
- The establishment of plantings within bogs and bayheads is an activity compatible with these wetland types as long as certain criteria are met. These

include:

- The area of planting shall not exceed 10% of the area of each wetland or wetland area affected within the property boundary.
- There shall be no drainage of surface water or groundwater except in wet prairies where the construction of drainage ditches of not more than three (3) feet depth is permitted.
- A buffer strip one hundred (100) feet wide of natural unaltered vegetation shall be left between the established planting and any surface water body or natural drainage system.

- Activities involved with subtantial restoration or modification of existing structures and improved areas can be compatible within this wetland type provided certain criteria are met:
  - Any reconstruction, restoration or modification of filled roads or dikes must be designed such that natural surface water flows are not impounded.
  - Total filled or improved area shall not exceed 10% of the wetland within the property boundary.
  - The use of heavy equipment shall be minimized.

- Construction or modification of mosquito control or drainage ditches is a compatible use within the bayheads and bogs as long as the following criteria are met:
  - All drainage ditches or mosquito control ditches shall be no deeper than three (3) feet measured from the ground surface.
  - The discharge of waters from ditches into surface water bodies or open water streams shall be discouraged and minimized. Discharge into existing compatible wetlands whenever possible shall be encouraged.

- The use of herbicides and pesticides is prohibited.

- Expansion of existing structure or improved areas is an acceptable activity in bayheads and bogs as long as adequate controls are exercised. These include:

    - Total filled areas (including any existing filled areas and those proposed) shall not exceed 10% of the wetland within the property boundaries.

    - Any roads or other improved areas shall not impede surface water flows within the wetland nor impound waters.

    - The use of heavy equipment shall be minimized.

    - All additions or new structures shall be designed to conform to flood-prone regulations. In the absence of these regulations, the finished floor of the occupied unit will be at least 3 feet above the established high water line or 7 feet above ground level.

- Discharge of domestic, agriculture, industrial or storm water runoff onto this wetland type is an allowable activity in this area provided certain criteria are met. These include:

    - Wherever possible, the wetlands used for domestic and agricultural waste water recycling shall be isolated wetlands and not wetlands that have direct hydraulic connection to surface waters.

    - The discharge of industrial waste water shall be to isolated wetlands only and not into wetlands that have any direct hydraulic connection to surface water bodies.

    - The discharge of industrial waste waters containing concentrations of heavy metals or toxic substances in excess of state, local or federal regulations is prohibited.

- The discharge of agricultural waste waters containing pesticides or herbicides in excess of state, local or federal regulations is prohibited.

- The capacity of the wetland area to receive effluents should be calculated to determine the amount of effluent the wetland is capable of retaining and not alter seasonal fluctuations (bayheads and bogs should not receive excessive water so the wet and dry seasons are altered) water levels should not increase more than 10% above normal.

- Bayheads and bogs with hydrologic connections that are being used for agricultural and domestic discharge of effluents should have discharge points located so the effluent is retained within the wetland a sufficient length of time needed to filter and remove pollutants.

- Discharge of waste water and storm water runoff should not be channelized. Systems should be designed and utilized so waste water flows through the wetland with sufficient retention or residence time so the water is properly filtered and exposed to the natural cleansing process.

- The discharge of storm water into wetlands shall not be excessive in volume or velocity. If this appears to be the case, retention basins will be required so storm water is released naturally from the basins to the wetlands.

- The discharge of storm water runoff from industrial or commercial land uses shall first be to a retention basin (pond) constructed on uplands and seeded or vegetated with wetland species. Storm waters may then be released to wetlands.

- Bulkheading within bayheads and bogs is an acceptable activity in this wetland type as long as certain criteria are followed:

- Bulkheads shall be constructed for the purposes of protecting structures or improved areas from potential flood waters only. All other purposes are deemed inappropriate.

- Bulkheads that impound waters, raising water levels within the wetland above normal storm water storage levels as determined by the County Engineer shall be prohibited.

- Bulkheads constructed for the purposes of diverting, impeding or excluding natural surface water inflow to a wetland or outflow from a wetland shall be prohibited.

- Bulkheads shall not be constructed that will constrict the flow of water and thus increase flow velocity within wetlands.

- The use of heavy equipment during construction shall be minimized.

- Filling other than in conjunction with construction of permitted structures or improved areas and/or filling of greater than 10% of the wetland on the property can be compatible with the maintenance of bayheads and bogs as long as the following standards are met:

    - The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material, or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

    - The filled area shall not exceed 10% of the wetland within the property boundary.

    - Any roads or improved areas shall neither impede surface water flows within wetlands nor impound waters.

    - Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction,

turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop on the filled area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Installation of utilities is also a compatible activity within bogs and bayheads as long as certain criteria are met:

  - The installation of utilities including roads shall conform to all performance criteria given for specific activities that are associated with said installation.

  - Where filling, dredging and/or bulkheading are incompatible, utility systems and roads shall be constructed above ground on supports, piers or bridging.

  - Areas cleared as rights-of-way or easements shall not be greater than 10% of the wetland area within the property boundary.

  - In wetlands where dredging, filling or bulkheading is compatible subject to meeting required performance criteria, the utility system or road shall not impede, interrupt or impound normal surface water flow.

  - Every care shall be taken to maintain disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop in the disturbed area.

- Fill in less than or equal to 10% of wetland areas in conjunction with permitted construction is a

compatible activity assuming certain performance criteria are followed:

- Filling shall be in conjunction with the construction of permitted structures and associated access roads, yards and septic tanks only.

- The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area structures shall not exceed 10% of the wetland within the property boundary.

- The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

- Any filled roads or improved areas shall neither impound nor impede surface water flows within wetlands.

- Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidity screens and any other means necessary to maintain siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Clearing of vegetation in conjunction with construction of permitted structures is an activity that is compatible in this particular wetland as long as the required standards are followed. They include:

  - The activity shall be carried out during the normal dry season (usually October through May) only.

- The area of clearing and all other areas of fill, access roads, docks, catwalks, structures and improved areas shall not exceed 10% of the wetland within the property.

- All materials that are cleared from the wetland shall be removed from the site and not piled or windrowed within the wetland community.

  Precautions shall be taken to minimize impacts to surrounding vegetation. During clearing operations turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop in the cleared area.

- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between cleared areas and any surface water body.

- Clearing shall be carried out only in conjuction with the construction of permitted structures.

- Construction of permitted structures is an acceptable use in bayhead and bog wetlands as long as certain criteria for development are met. These include:

  - All improved areas (including access roads, parking lots, docks, catwalks, area of structure, yards, cleared areas, retention basins, etc.) shall be no greater than 10% of the area of the wetland within the property boundaries.

  - If the wetland is including in lands designated as "flood-prone area", all conditions, provisions and restrictions of the flood-prone classification ordinance shall apply in addition to the performance criteria contained herein.

  - In the absence of a flood-prone classifica-

tion, all structures shall be constructed so that the finished floor elevation of occupied spaces is at least three (3) feet above established high water elevations or seven (7) feet above natural ground level.

- The use of heavy equipment during construction shall be minimized.

- The drainage system for the improved area shall comply with the conditions, restrictions and provisions of the drainage system design standards for the local development code.

- Access roads and other improved areas shall be designed and located so as not to impede, interrupt or impound normal and storm surface water flows.

- Impoundments totally within the approved area, used as retention basins, are allowable impoundments of water.

- All commercial and industrial uses within wetlands shall have retention basins for storm water runoff. Said retention basins shall be designed and constructed with sediment traps and litter or trash screens. All storm water runoff shall be routed through the retention basin, sediment trap and litter or trash screens before release or outfall from the improved area. If the retention basin is constructed within the wetland, it is considered to be part of the improved area, and said area, including all roads, parking lots, structures, lawns, cleared areas, etc., shall not exceed 10% of the wetland within the property.

- Installation of septic tanks is a compatible activity within bayheads and bogs as long as certain standards are adhered to:

    - Septic tanks shall conform to all provisions of Duval County Health Department Regulations and applicable state regulations.

- Septic tanks shall either be elevated on filled areas such that the lowest point of the drain field is a minimum of three (3) feet above the normal high water level in the wetland or be located on suitable upland soils having proper percolation rates and wastes shall be pumped from a holding tank to this upland septic tank and drain field.

- The maximum number of septic tanks within wetland areas shall be one (1) per five (5) acres.

- Storage, use or disposal of hazardous materials can be an acceptable activity in bayhead and bog areas as long as all proper precautions and criteria are met. These include:

  - Every care shall be taken to insure that release of hazardous materials to the environment through the actions of winds, surface waters or ground waters shall not exceed one-thirtieth (1/30) of the Threshold Limit Values (TLV) permitted of those hazardous materials currently listed in the Threshold Limits Values adopted by the American Conference of Governmental Industrial Hygienists.

  - The storage, use or disposal of hazardous material shall not occur in any wetland having a direct hydraulic connection to surface water bodies.

  - Tests shall be undertaken to determine the nature of groundwater flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

  - There shall be no dredging within wetlands where the storage, use or disposal of hazardous materials is proposed or is being car-

ried out, nor shall there by any activity that will disrupt the existing natural land contours. This includes, but is not limited to, use of heavy equipment, drilling of wells, excavating, jetting of pilings, or construction of any structure.

- The storage, use or disposal of hazardous materials in flood plains and flood prone areas shall be prohibited.

All but a half dozen activities previously discussed in this section are compatible in upland areas adjacent to bayheads and bogs as long as certain standards and criteria for these activities are met. The following describes the activities and the restrictions that apply:

- Construction or modification of mosquito or drainage ditches can be acceptable activities in adjacent areas if these criteria are followed:
  - All drainage ditches or mosquito control ditches shall be no deeper than three (3) feet, measured from the ground surface.
  - Discharge from drainage or mosquito control ditches directly to surface water bodies or open water streams shall be discouraged and minimized. Discharge into existing compatible wetlands or properly constructed retention basins shall be encouraged.
  - Drainage or mosquito control ditches shall be constructed as swales, with gently sloping sides not to exceed a 4:1 slope.
- The use of herbicides and pesticides in areas adjacent to bayheads and bogs shall be discouraged. Removal of vegetation from mosquito control canals by mechanical means shall be encouraged.
- Dredging of any kind other than for mosquito control or drainage ditches can be a compatible activity adjacent to bayheads and bogs as long as certain criteria and standards regarding this activity are met:
  - The deposition of dredged material must

conform to all performance criteria related to filling and/or bulkheading within or adjacent to wetlands.

- There shall be no direct surface water connection from dredged or excavated areas to surface water bodies or open water streams.

- If an outfall from the dredged or excavated area is necessary to remove excess storm waters, then the outfall shall either be routed through a compatible wetland or a shallow retention basin constructed properly to act as a filter for runoff.

- The dredged or excavated area shall not be so close to the adjacent wetland so as to cause the flow of surface waters from the wetland to the dredged or excavated area.

- Surface water flows and/or sheet flow runoff shall not be interrupted, impounded, or diverted away from receiving wetland communities as the result of the dredged or excavated area or the deposition of fill from the dredged or excavated area.

- Bulkheading can also be an acceptable activity in areas adjacent to this wetland type as long as the required standards for this type of activity are met:

  - Bulkheading constructed for the purposes of diverting, impeding or excluding natural surface water runoff into a wetland shall be prohibited, except for bulkheads constructed as part of a development drainage system, which shall be constructed so as to impede storm water runoff when necessary such that the outflow from the drainage system approximates the conditions existing prior to development or redevelopment.

  - Bulkheads constructed in areas adjacent to wetlands shall not result in the channelization of water flow into a wetland community.

- The activities associated with filling other than in conjunction with construction of permitted structures or improved areas and/or filling more than 10% of the wetland within the property can be a compatible use adjacent to bayheads as long as certain criteria are followed:

    - The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material, or any material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

    - The filled area shall not divert, impede or exclude natural surface water runoff into or out of a wetland.

    - The filled area shall not result in the channelization of surface water flow into a wetland.

    - Precautions shall be taken to insure that erosion and subsequent sedimentation of the fill material shall not occur within any wetland.

    - A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

- Storage, use or disposal of any hazardous material adjacent to bayhead and bog wetlands can be a compatible activity in this area as long as certain performance standards are followed:

    - The storage, use or disposal of hazardous materials in areas adjacent to wetlands that have direct hydraulic connections to surface bodies shall be prohibited.

    - There shall be no storage, use or disposal of hazardous materials in areas adjacent to wetlands that have been dredged or filled, that have had any structure constructed within, or that have had wells drilled, pilings jetted

or any excavations carried out within the adjacent wetland.

- Tests shall be undertaken to determine the nature of groundwater flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

- There shall be no drainage channels or ditches constructed in the adjacent area that will allow surface waters to enter any wetland.

- All retention basins constructed in conjunction with the storage, use or disposal of hazardous materials shall have an impermeable lining and shall be of sufficient size as to store all anticipated storm water runoff from a twenty-five (25) year rainfall event.

- The storage, use or disposal of hazardous materials in areas designated as "flood-prone areas" shall be prohibited.

- The disposal of solid waste in areas adjacent to bayhead and bog wetlands can be a compatible use in the area as long as certain criteria are followed:

    - The disposal of solid wastes shall not occur in areas adjacent to wetlands that have a direct hydraulic connection to surface water bodies.

    - There shall be no solid waste disposal in areas adjacent to wetlands that have been dredged or filled, that have had any structure constructed within, or that have had wells drilled, pilings jetted, or any excavations carried out within the adjacent wetland.

    - There shall be no drainage channels or

ditches constructed in the adjacent area that will allow surface waters to enter any wetland.

- Tests shall be undertaken to determine the nature of ground water flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety.

Hydrick Hammock/Swamp Hammock

Hydrick or Swamp Hammocks are still water wetlands occurring on poorly drained soils that are not subject to periodic flooding. They generally occur in narrow areas between river swamps and upland communities in troughs behind coastal dunes and in depressions in flatwood areas.

There are many activities that are compatible, incompatible and can be compatible with mitigation standards. What follows is a discussion of these activities that are allowable in this area, incompatible activities that should be avoided because of its affect on this type of wetland and activities with accompanying performance standards that can be acceptable uses in this type of wetland as long as the performance standards are followed.

Incompatible Uses

There are many activities that cause undue stress on Hydrick Hammocks and tend to destroy the natural function and integrity of the area. These activities are considered incompatible in this wetland type and should be avoided. They include:

- Production of agricultural or horticultural crops.
- Harvesting of timber and wood products.
- Construction of or modification of mosquito control or drainage ditches.
- Dredging of any kind other than for mosquito control

or drainage ditches.

- Discharging of domestic, industrial, agricultural wastewater or storm water runoff.
- Filling other than in conjunction with construction of permitted structures or improved areas and/or filling more than 10% of the wetland area within the property.
- Use of any pesticide or herbicide.
- Installation of stormwater retention basins.
- Storage, use or disposal of any hazardous waste material.
- Solid waste disposal sites.

Compatible Activities

There are also many activities that are compatible uses within the Hydrick Hammocks and do not cause irreparable damage to these areas when undertaken within them. They include:

- Cultivation of naturally occurring agricultural or horticultural products.
- Scenic, historic, wildlife or scientific preserves.
- Minor maintenance or emergency repair to existing structures or approved areas.
- Removal of natural products in this wetland in conjunction with recreation or commercial fishing, hunting or trapping.
- Cleared walking trails having no structural components.
- Timber catwalks and docks greater or less than 4 feet wide.
- Establishing plantings.
- Substantial restoration, reconstruction or modifica-

tion of existing structures and improved areas as well as expansion of existing structures.

- Filling less than or equal to 10% of the wetland area within the property in conjunction with construction of permitted structures.

- Clearing of vegetation in conjunction with the construction of permitted structures.

- Construction of permitted structures.

- Installation of septic tanks.

There are also several activities that fall within the third category of activities, those that are allowable within this wetland type as long as certain mitigation procedures and criteria for development are met. These activities with criteria are as follows:

- Operation of motorized vehicled are an acceptable use in Hydrick Hammocks as long as the motorized vehicles do not include terrestrial vehicles such as jeeps, swamp buggies, all terrain vehicles and the like.

- Discharge of domestic, agriculture, industrial and storm water runoff from adjacent land into Hydrick Hammocks is a compatible use of the area as long as certain criteria are met. These include:

    - Wherever possible, the wetlands used for domestic and agricultural wastewater recycling shall be isolated wetlands and not wetlands that have direct hydraulic connection to surface waters.

    - The discharge of industrial wastewater shall be to isolated wetlands only and not into wetlands that have any direct hydraulic connection to surface water bodies.

    - The discharge of industrial waste waters containing concentrations of heavy metals or toxic substances in excess of state, local and federal regulations is prohibited.

    - The discharge of agricultural waste waters

containing pesticides or herbicides in excess of state and federal regulations shall be prohibited.

- The capacity of the wetland to receive and process effluents should be calculated to determine the amount of effluent the wetland is capable of retaining and still not alter the seasonal fluctuations of water. (These areas should not receive excess water in either the wet or dry season.) Water levels should not be increased more than 10% above normal levels.

- Hydrick Hammocks with hydrologic connections used for agricultural and domestic discharge should have discharge points located so the effluent is retained within the wetland for the time necessary to filter and remove pollutants.

- Discharge of waste and storm water runoff should be designed and utilized so waste water flows through wetlands with sufficient retention or residence time so water is properly filtered and exposed to natural cleansing processes.

- The discharge of excess storm water runoff shall not be excessive in volume or velocity. Where volume or velocity can be expected to be excessive after a rainfall event, retention ponds shall be constructed on uplands to receive storm water runoff, allow some settling of sediments and slowly release the waters to the wetland.

- The discharge of storm water runoff from industrial or commercial land uses shall first be to a retention basin (pond) constructed on uplands and seeded or vegetated with wetland species. Storm waters may then be released to wetlands.

Upland development can also have an affect on the wetland areas they are adjacent to. Nearly all activities previously discussed are compatible activities in areas adjacent to Hydrick Hammocks with the exception of two uses. These uses are compatible as long as certain performance criteria are met. These activities and performance standards include the following:

- Bulkheading adjacent to Hydrick Hammocks is an acceptable use as long as certain criteria are met:
    - Bulkheads constructed for the purposes of diverting, impeding or excluding natural surface water runoff into a wetland shall be prohibited, except for bulkheads constructed as part of a development drainage system, which shall be constructed so as to impede storm water runoff when necessary such that the outflow hydrograph from the drainage system approximates the hydrograph of conditions existing prior to development or redevelopment.
    - Bulkheads constructed in areas adjacent to wetlands shall not result in the channelization of water flow into a wetland community.
- Storage, use or disposal of hazardous material can also be a compatible activity adjacent to Hydrick Hammocks as long as the following criteria are adhered to:
    - The storage, use or disposal of hazardous materials in areas adjacent to wetlands that have direct hydraulic connections to surface water bodies shall be prohibited.
    - There shall be no storage, use or disposal of hazardous materials in areas adjacent to wetlands that have been dredged or filled, that have had any structure constructed within, or that have had wells drilled, pilings jetted or any excavations carried out within the adjacent wetland.
    - Tests shall be undertaken to determine the nature of ground water flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

- There shall be no drainage channels or ditches constructed in the adjacent area that will allow surface waters to enter any wetland.

- All retention basins constructed in conjunction with the storage, use or disposal of hazardous materials shall have an impermeable lining and shall be of sufficient size as to store all anticipated storm water runoff from a twenty-five (25) year rainfall event.

- The storage, use or disposal of hazardous materials in areas designated as "flood-prone areas" shall be prohibited.

Wet Prairies

Wet Prairies are the last wetland type to be considered for capability with particular activities. These areas are sometimes called freshwater meadows and are often considered shallow freshwater marshes. Wet Prairies often occur in low areas receiving water from storm runoff and nearby higher areas. This wetland type is regularly flooded with fresh water.

Wet prairies, like previously discussed wetland types are also capable of supporting many activities. Some activities are considered incompatible in these areas because they disrupt the balance of the system, Other activities can be compatible as long as certain standards and mitigation procedures are practiced.

There are not really any activities that are considered totally incompatible with the function of Wet Prairie systems as long as reasonable care is taken during these activities. The majority of usualy development activities are compatible with this wetland type. They include:

- Cultivation of naturally occurring agricultural or horticultural products.

- Scenic, historic, wildlife or scientific preserves.

- Minor maintenance or emergency repair to existing structures or improved areas.
- Removal of natural products of wetlands in the process of recreation or commercial fishing, aquaculture, hunting or trapping.
- Cleared walking trails with no structural components.
- Timbered catwalks wider than and less than 4 feet.
- Operation of motorized vehicles.
- Discharge of domestic, agricultural, industrial or storm water runoff into adjacent wetlands.

The majority of previously discussed development activities are allowable, although some require certain criteria and precautions be met. These activities and criteria include:

- Production of agricultural or horticultural crops can be a compatible activity within Wet Prairies as long as the following criteria can be met:
    - Drainage ditches or channels shall not be any deeper than 3 feet.
    - Water level control structures to maintain water levels at least equal to .25 meters for Wet Prairies during the dry season are required at outfall points where surface waters exist property.
    - The water level control structures shall be constructed as variable weirs, such that the height of the weir can be raised and lowered to facilitate control of water levels in drainage ditches or channels.
- The establishment of plantings within Wet Prairies can be a compatible activity as long as the proper mitigation and controls are practiced. They include:
    - The area of planting shall not exceed 10% of the area of each wetland or wetland area

affected within the property boundary.

- There shall be no drainage of surface water or groundwater except in Wet Prairies where the construction of drainage ditches of not more than three (3) feet depth is permitted.

- A buffer strip one hundred (100) feet wide of natural unaltered vegetation shall be left between the established planting and any surface water body or natural drainage system.

- Substantial restoration, reconstruction or modification of existing structures and improved areas can be a compatible activity in Wet Prairies as long as certain criteria are adhered to. They include:

    - Any reconstruction, restoration or modification of filled roads or dikes must be designed such that natural surface water flows are not impounded. The installation of culverts in sufficient quantity and size so as not to impede surface waters are required.

    - Total filled or improved area shall not exceed 10% of the wetland within the property boundary.

    - The use of heavy equipment shall be minimized.

- Construction or modification of mosquito control or drainage ditches can be an acceptable activity within Wet Prairies as long as certain criteria are met. They include:

    - All drainage ditches or mosquito control ditches shall be no deeper than three (3) feet measured from the ground surface.

    - A surface water control structure of weir shall be constructed at the outfall point and/or the property line. Said structure shall have a variable height to facilitate water level control in drainage ditches and to maintain at least .25 meters of Wet

Prairies.

- The discharge of waters from ditches into surface water bodies or open water streams shall be discouraged and minimized. Discharge into existing compatible wetlands whenever possible shall be encouraged.

- The use of herbicides for the removal of vegetation from drainage ditches shall be discouraged in Wet Prairies; instead, mechanical harvesting should be used for vegetation removal.

- The use of pesticides shall be discouraged in Wet Prairies.

- The expansion of existing structures or improved areas can be a compatible use in this wetland area as long as certain requirements are met:

  - Total filled areas (including any existing filled areas and those proposed) shall not exceed 10% of the wetland within the property boundaries.

  - Any filled roads or other improved areas shall not impede surface water flows within the wetland nor impound waters. Roads and other improved areas should be constructed with installed culverts of sufficient size and quantity so as not to impede, interrupt or impound normal or storm surface water flows.

  - The use of heavy equipment shall be minimized.

  - All additions or new structures shall be designed to conform to flood-prone regulations and in the absence of applicable flood-prone jurisdiction, shall be constructed so that the finished floor elevation of occupied spaces is at least three (3) feet above established high water elevations or 7 feet above natural ground surface.

- Dredging of any kind other than for mosquito control or drainage ditches can be an acceptable activity if proper precautions and criteria are met. They include:
    - Dredged area shall not exceed 10% of the wetland within the property boundary.
    - The deposition of the dredged material must conform to all performance criteria related to filling or bulkheading within or adjacent to wetlands.
    - There shall be no direct surface water connection from dredged or excavated areas to surface water bodies or open water streams.
    - If an outfall from the dreged or excavated area is necessary for the removal of excess storm waters, then a retention basin shall be constructed to act as a filter for run-off. Said retention basin shall be considered as part of the 10% allowable area of dredging within the wetland or that portion of the wetland within the property boundary.
- Bulkheading activities within Wet Prairies can be a compatible use in this area as long as certain standards are met:
    - Bulkheads shall be constructed for the purposes of protecting structures or improved areas from potential flood waters only. All other purposes are deemed inappropriate.
    - Bulkheads that impound waters, raising water levels within the wetland above normal storm water storage levels as determined by the County Engineer shall be prohibited.
    - Bulkheads constructed for the purpose of diverting, impeding or excluding natural surface water inflow to a wetland or outflow from a wetland shall be prohibited.
    - Bulkheads shall not be constructed that will constrict the flow of water and this increase flow velocity within wetlands.

- The use of heavy equipment during construction shall be minimized.

- Filling other than in conjunction with construction of permitted structures or improved areas and/or filling greater than 10% of the wetland area within the property boundaries.

  - Filling shall be in conjunction with the construction of permitted structures and associated access roads, yards and septic tanks only.

  - The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area of structures shall not exceed 10% of the wetland within the property boundary.

  - The fill material shall be "clean fill" and not garbage, refuse, toxic or contaminated material or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

  - Any roads or improved areas shall neither impound nor impede surface water flows within wetlands. Roads and other improved areas shall be constructed so as to not impede, interrupt or impound normal or storm surface water flows.

- Use of pesticides and herbicides can be compatible in Wet Prairies as long as proper precautions and certain criteria are met:

  - Application of pesticides or herbicides shall occur only during the normal dry season (only from October through May).

  - Equipment for the application of the pesticide or herbicide shall be chosen so that it best directs the chemical to the target organism.

  - Every precaution shall be taken to avoid

the direct contamination of surface water during the application and during the mixing and preparation of the chemicals.

- Aerial application or mist blowing of pesticides or herbicides shall be avoided whenever possible.

- Installation of utilities is a compatible activity within Wet Prairies as long as certain performance standards are adhered to:

  - The installation of utilities including roads shall conform to all performance criteria given for specific activities that are associated with said installation.

  - Where filling, dredging and/or bulkheading are incompatible, utility systems and roads shall be constructed above ground on supports, piers or bridging.

  - Areas cleared as rights-of-way or easements shall not be greater than 10% of the wetland area within the property boundary.

  - In wetlands where dredging, filling or bulkheading is compatible subject to the issuance of a wetlands development permit, the utility system or road shall not impede, interrupt or impound normal surface water flows.

- Filling activity in less than or equal to 10% of the wetland within the property boundaries in conjunction with the construction of permitted structures is a compatible use of Wet Prairies as long as certain criteria are met:

    - Filling shall be in conjunction with the construction of permitted structures and associated access roads, yards and septic tanks only.

    - The area of fill and all other improved areas, excavations, cleared areas, decks, catwalks and area of structures shall not exceed 10% of the wetland within the property boundary.

    - The fill material shall be "clean fill" and not barbage, refuse, toxic or contaminated material or any other material that through the actions of soil water leaching may cause a degradation of surface water and ground water quality.

    - Any roads or improved areas shall neither impound nor impede surface water flows within wetlands. Roads and other improved areas shall be constructed so as to not impede, interrupt or impound normal or storm surface water flows.

    - Precautions shall be taken to minimize disruption of the surrounding wetland and surface water bodies. During construction, turbidy screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilization of the area.

    - A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between filled areas and any surface water body.

    - Clearing of vegetation in conjunction with construction of permitted structures can be an acceptable activity in Wet Prairies as

long as certain performance standards are met. These include:

- The activity shall be carried out during the normal dry season (usually October through May) only.
- The area of clearning and all other areas of fill, access roads, docks, catwalks, structure and improved areas shall not exceed 10% of the wetland within the property.
- All materials that are cleared from the wetland shall be removed from the site and not piled or windrowed within the wetland community.
- Precautions shall be taken to minimize impacts to surrounding vegetation. During clearing operations, turbidity screens and any other means necessary to minimize siltation, sedimentation and/or erosion shall be used at all times and left in place for a period of time sufficient for stabilized conditions to develop in the cleared area.
- A buffer strip fifty (50) feet wide of natural undisturbed vegetation shall be maintained between cleared areas and any surface water body.
- Clearing shall be carried out only in conjunction with the construction of permitted structures.

- Construction of permitted structures is an allowable activity within Wet Prairies as long as the following criteria are met:
  - All improved areas (including access roads, parking lots, docks, catwalks, area of structure, yards, cleared areas, retention basins, etc.) shall be no greater than 10% of the area of the wetland within the property boundaries.

- If the wetland is included in lands designated as "flood-prone area", all conditions, provisions and restrictions of the flood-prone classification ordinance shall apply in addition to the performance criteria contained herein.

- In the absence of a flood-prone classification, all structures shall be constructed so that the finished floor elevation of occupied spaces is at least three (3) feet above established high water elevations or the distances above natural ground surface of 7 feet in Wet Prairies.

- The use of heavy equipment during construction shall be minimized.

- The drainage system for the improved area shall comply with the conditions, restrictions and provisions of the drainage system design standards for the locality.

- Access roads and other improved areas shall be designed and located so as not to impede, interrupt or impound normal and storm surface water flows, unless the impoundment is wholly within the improved area and used for the purpose of a storm water retention basin

- All commercial and industrial uses within wetlands shall have retention basins for storm water runoff. Retention basins shall be designed to meet local and/or state standards. Storm water runoff shall be routed through the retention basin before release or outfall from the improved area. If the retention basin is constructed within the wetland, it is considered to be part of the improved area and said area, including all roads, parking lots, structures, lawns, cleared areas, etc., shall not exceed 10% of the wetland within the property.

- Installation of septic tanks can also be a compatible activity within Wet Prairies. Certain performance standards should be met in order to pro-

tect the integrity of the wetland. They include:

- Septic tanks shall conform to all provisions of County Health Department Regulations.

- Septic tanks shall either be elevated on filled areas such that the lowest point of the drain field is a minimum of three (3) feet above the normal high water level in the wetland or be located on suitable upland soils having proper percolation rates and wastes shall be pumped from a holding tank to this upland septic tank and drain field.

- The maximum number of septic tanks within wetland areas shall be one (1) per five (5) acres.

- Installation of storm water retention basins can be a compatible activity in this area as long as certain criteria are followed:

  - The size of the retention basin shall be limited to 10% of the wetland area or area of wetland within the property boundary.

  - If the retention basin is part of a larger development area, the combined area of improved area, structures, roads, etc., and the retention basin shall be no larger than 10% of the wetland area or area of wetland within the property boundary.

  - The retention basin shall not be dug any deeper than is necessary within the wetland, but rather constructed using a combination of excavation and berms. Deep excavations for the purposes of retention basins shall be discouraged.

  - The discharge of waters from a retention basin into surface water bodies and open water streams shall be discouraged and minimized. Discharge into existing, <u>compatible</u> wetlands whenever possible, shall be encouraged.

- The retention basin shall be vegetated and the use of herbicides and/or pesticides within the retention basin for vegetation and insect control shall be discouraged. Instead, mechanical vegetation removal, when necessary, shall be used whenever possible.

- Storage, use or disposal of hazardous materials can be a compatible use within Wet Prairies as long as certain precautions and performance criteria are met.

    - Every care shall be taken to insure that release of hazardous materials to the environment through the actions of winds, surface waters or ground waters shall not exceed one-thirtieth (1/30) of the Threshold Limit Values (TLV) permitted of those hazardous materials currently listed in the Threshold Limit Values adopted by the American Conference of Governmental Industrial Hygienists.

    - The storage, use or disposal of hazardous material shall not occur in any wetland having a direct hydraulic connection to surface water bodies.

    - Tests shall be undertaken to determine the nature of ground water flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

    - There shall be no dredging within wetlands where the storage, use or disposal of hazardous materials is proposed or is being carried out, nor shall there be any activity that will disrupt the existing natural land contours. This includes, but is not limited to, use of heavy equipment, drilling of wells, excavations, jetting of pilings or construction of any structure.

- The storage, use or disposal of hazardous material in areas designated as "flood-prone areas" shall be prohibited.

- Solid waste disposal within Wet Prairies can be a compatible use in this area, as long as proper performance standards are met. They include:

  - Solid waste disposal shall not occur in any wetland that has a direct hydraulic connection with any surface water body.

  - Tests shall be undertaken to determine the nature of ground water flows in the immediate area, and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

  - Solid waste disposal within <u>all</u> wetlands designated as "flood-prone areas" shall be prohibited.

All but a few activities are allowable without restriction in areas adjacent to Wet Prairies. These activities and required performance criteria are as follows:

- Dredging other than for mosquito control or drainage ditches can be a compatible activity in areas adjacent to Wet Prairies as long as certain criteria are met:

  - The deposition of dredged material must conform to all performance criteria related to filling and/or bulkheading within or adjacent to wetlands.

  - There shall be no direct surface water connection from dredged or excavated areas to surface water bodies or open water streams.

  - If an outfall from the dredged or excavated area is necessary to remove excess storm waters, then the outfall shall either be routed through a <u>compatible</u> wetland or a

shallow retention basin constructed and seeded or vegetated with wetland plant species to act as a filter for runoff.

- The dredged or excavated area shall not be so close to the adjacent wetland so as to cause the flow of surface waters from the wetland to the dredged or excavated area.

- Surface water flows and/or sheet flow run-off shall not be interrupted, impounded or diverted away from receiving wetland communities as the result of the dredged or excavated area or the deposition of fill from the dredge or excavated area.

- Bulkheading can be a compatible activity in areas adjacent to Wet Prairies as long as certain criteria are met. These include the following:

  - Bulkheads constructed for the purposes of diverting, impeding or excluding natural surface water runoff into a wetland shall be prohibited, except for bulkheads constructed as part of a development drainage system, which shall be constructed so as to impede storm water runoff when necessary such that the outflow from the drainage system approximates the conditions existing prior to development or redevelopment.

  - Bulkheads constructed in areas adjacent to wetlands shall not result in the channelization of water flow into a wetland community.

- Storage, use or disposal of any hazardous material is an acceptable activity in areas adjacent to Wet Prairies, as long as certain precautions and performance standards are met. They include:

  - The storage, use or disposal of hazardous materials in areas adjacent to wetlands that have direct hydraulic connections to surface water bodies shall be prohibited.

  - There shall be no storage, use or disposal of hazardous materials in areas adjacent

to wetlands that have been dredged or filled, that have had any structure constructed within, or that have had wells drilled, pilings jetted or any excavations carried out within the adjacent wetland.

- Tests shall be undertaken to determine the nature of ground water flow in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety, endanger wildlife or potentially degrade potable water supplies.

- There shall be no drainage channels or ditches constructed in the adjacent area that will allow surface waters to enter any wetland.

- All retention basins constructed in conjunction with the storage, use or disposal of hazardous materials shall have an impermeable lining and shall be of sufficient size as to store all anticipated storm water runoff from a twenty-five (25) year rainfall event.

- The storage, use or disposal of hazardous materials in areas designated as "flood-prone areas" shall be prohibited.

- Solid waste disposal can be a compatible activity in areas adjacent to Wet Prairies as long as the following precautions are taken:

  - The disposal of solid wastes shall not occur in areas adjacent to wetlands that have a direct hydraulic connection to surface water bodies.

  - There shall be no solid waste disposal in areas adjacent to wetlands that have been dredged or filled, that have had any structure constructed within, or that have had wells drilled, pilings jetted, or any excavations carried out within the adjacent wetland.

- There shall be no drainage channels or ditches constructed in the adjacent area that will allow surface waters to enter any wetland.

- Tests shall be undertaken to determine the nature of ground water flows in the immediate area and based on the results of these tests, no solid waste disposal shall occur where seepage from the disposal site may threaten public health and safety.

WETLAND PROTECTION ALTERNATIVES

ALTERNATIVES FOR LOCAL WETLAND PROTECTION

A comprehensive management plan for wetland protection requires not one, but a variety of alternatives and ideas to assure reasonable protection for these areas. The integration of alternatives and techniques increases the chances for success of the program.

Having considered various aspects of the local climate, the ideas presented here are all alternatives in regard to wetland protection needs in the Jacksonville area.

The first alternative is the City of Jacksonville Floodplain Protection and Surface Water Management Code. This ordinance attempts to limit and manage development in floodplains, wetlands and areas within 100 feet of a water course.

This ordinance has requirements and standards that should be met when designing developments located in floodplain areas. Included in this ordinance are guidelines in the form of performance standards by wetland type.

The objective of the ordinance is to protect floodplain areas so they are able to perform their natural function of stormwater retention and filtration of runoff. The theory being that maintaining natural floodplains and retention areas (including wetlands) are a much more cost effective alternative for stormwater management than man-made systems.

The second ordinance addresses surface water management. The City of Jacksonville presently has an existing floodplain ordinance and adding another ordinance that addresses the same subject may be considered redundant and unnecessary. Therefore, this ordinance focuses on wetlands and areas within 100 feet of a water course. It establishes development standards and provisions for construction in these areas. This ordinance has been designed to integrate easily with the existing site plan review processes. It is anticipated that the impact of this code will be to require general delineation of wetlands on sketch plans for site review and limit the alteration of wetlands and areas adjacent to rivers and creeks.

Another approach to the protection of wetlands is the revision of existing regulations. This alternative appears to be less involved than other approaches. With relatively minor alterations, these existing ordinances can provide a reasonable amount of protection for local wetlands without many of the problems associated with writing, promoting and implementing a completely new ordinance.

With more local emphasis being placed on growth management and planned development, the inclusion of many of the proposed alternatives into the 2005 Comprehensive Plan is another very viable alternative for wetland protection.

Incorporating the ideas and recommendations of this and other studies into the 2005 Plan will provide better guidelines and recommendations on which the City can base its growth policies.

Revising the local Comprehensive Plan to include recommendations and guidelines for performance standards and wetland protection alternatives could have broad, far reaching effects on local protection efforts.

The following alternatives have potential as part of the local comprehensive wetland protection strategy.

ORDINANCE

AN ORDINANCE PRESCRIBING MINIMUM FLOOD STANDARDS AND WATER MANAGEMENT STANDARDS FOR DEVELOPMENT OF AREAS OF SPECIAL FLOOD HAZARD; FLOODPLAINS AND SELECTED WETLANDS; PRESCRIBING REQUIREMENTS AND PROCEDURES FOR DEVELOPMENT PLAN APPROVAL; PROVIDING FOR THE ADMINISTRATION OF SAID REGULATIONS; PROVIDING PROCEDURES FOR APPEALS AND VARIANCES; PROVIDING A PENALTY; PROVIDING FOR MITIGATION; PROVIDING FOR INJUNCTIONS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

ARTICLE I

GENERAL PROVISIONS

SECTION 1-1 SHORT TITLE: This Ordinance shall be known as the CITY OF JACKSONVILLE FLOODPLAIN PROTECTION AND SURFACE WATER MANAGEMENT CODE.

SECTION 1-2 PURPOSE: The purposes of this Ordinance are to: 1) mimimize the adverse impacts of development on resources of the potable shallow water aquifer and flood detention areas, 2) promote the public health, safety and general welfare, 3) minimize public and private losses due to flood conditions in specific areas, 4) reduce the potential burden of all taxpayers in the County through the use of public expenditures for flood control projects and infrastructure expansion and maintenance, 5) restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion in flood conditions, 6) require that structures subject to flooding be protected against flood damage, 7) protect the storage capacity of flood-plains, 8) prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands, 9) protect the normal quantity, quality and flow of ground water and surface water which are necessary for the protection of resources of state, regional and local concern, 10) protect the water available for aquifer recharge, 11) protect the normal supply of ground and surface water, 12) protect the water retention and filtration capabilities of wetlands, 13) protect the general biological functions of wetlands,

14) protect the natural flow regime of drainage basins and 15) protect the design capacity of flood-detention areas and the water management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins and wetlands.

SECTION 1-3 APPLICABILITY: The regulations herein set forth shall apply in all areas of selected wetlands, areas of special flood hazard and to all lands lying within 100 feet of a watercourse within the appropriate service districts excluding the three beach communities and Baldwin area.

SECTION 1-4 EXEMPTIONS: The following activities are exempt from the provisions of this Ordinance:

Public health activities, orders and regulations of the State Department and Rehabilitative Services and other similar agencies related to public health protections.

Any emergency activity which is immediately necessary for the protection and preservation of life or property or for the protection of preservation of a natural resource. Such emergency activities include, for example, search and rescue operations; preventive and remedial activities related to large-scale

contamination of streams or other bodies of water, floods, hurricanes and other storms and public health concerns. Within five (5) days after the commencement of such emergency involving the undertaking of any activity which otherwise would be treated as a regulated activity under this Ordinance, the person chiefly responsible for undertaking such emergency activity shall send a written statement to the Public Works Department setting forth the pertinent facts regarding such emergency, including an explanation of the life, property or resource such activity was designated to protect or preserve.

SECTION 1-5 FLOOD HAZARD BOUNDARY MAP: The Federal Insurance Administration, Flood Hazard Boundary Map (FHBM), for Jacksonville/Duval County, dated December 15, 1983, and subsequent revisions thereto, are adopted by reference and declared to be part of this Ordinance.

SECTION 1-6 PROVISIONS DECLARED TO BE MINIMUM REQUIREMENTS: The provisions of this Ordinance are intended to be minimum requirements and shall take precedence over any less restrictive conflicting local laws, ordinances or codes.

SECTION 1-7 WARNING AND DISCLAIMER OF LIABILITY: The degree of flood protection and surface and ground water protection required by this Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such area will be free from flooding or flood damages. This Ordinance shall not create liability on the part of the City Council or by any official or employee of the City of Jacksonville for any flood damages or adverse effects of changes in quantity or quality of surface or ground water that result from reliance on this Ordinance or any administrative decision lawfully made thereunder.

ARTICLE II

DEFINITIONS

SECTION 2-1 DEFINITIONS: Unless specifically defined below, words or phrases used in this Ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this Ordinance its most reasonable application.

Administrative Appeal means a request for review of any administrative decision or interpretation made under this Ordinance.

Aquifer means an underground formation, or group of formations, or part of a formation, that is permeable enough to transmit and store usable quantities of water.

Area of Special Flood Hazard is the land in the flood plain subject to a one percent (1%) or greater change of flooding in any given year and shown as "A" zones and "V" zones on the Flood Hazard Boundary Map.

Base Flood means the flood having a one percent (1%) chance of being equalled or exceeded in any given year, commonly referred to as the "one hundred year flood".

Council means the City Council of the City of Jacksonville, Florida.

City Administrator includes, but is not limited to, the City of Jacksonville's Directors of Public Works, Planning Department and Building and Zoning or their designated staff.

Density Credits means a value equal to the maximum number of residential dwelling (family) units which may be constructed on a given amount of land under the existing zoning classification of that land, usually expressed in dwelling units per acre.

Density Transfer - moving the allowable density of a building site from one location to another.

Developer means any person, including a governmental agency, undertaking development.

Development means:

(a) any man-made change to improved or unimproved real estate including, but not limited to, mining, dredging, filling, grading, paving, drilling, (except to obtain soil and mineral samples) or excavation operations. In this Ordinance, development means:

(1) The establishment of a subdivision.

(2) The construction and maintenance of a road, whether paved or unpaved, and related to drainage systems.

(3) The establishment of a mobile home park.

(4) The clearing of land as an adjunct of construction.

(5) The deposit of refuse, solid or liquid waste or fill, on a parcel of land.

(6) Construction and maintenance activities by any utility company.

(7) The use of land for the purpose of growing plants, crops, trees or other agricultural or forestry products; raising livestock; or other agricultural purposes, provided, however, that such land use shall only be subject to the requirements of subsections 6-1(1) and 6-1(2) of Article VI.

(8) New construction.

(9) Substantial improvements.

The following activities shall not constitute development for purposes of Article VI (Water Management Standards):

. Construction or substantial improvement of a single family residence in which the owner of the property, at the time of application for a building permit intends to reside upon its completion.

- Modification of any existing structure that does not constitute a substantial improvement.
- Installation of one uninhabited residential accessory structure per lot. (Principal structure and accessory buildings cannot exceed 35% of the lot coverage of the zoning district of which they are a part.)

Development Permit includes any building permit, plat approval or subdivision plan approval, utility permit, variance or other action having the effect of permitting development.

Engineer means a civil engineer registered and currently licensed to practice in the State of Florida.

Existing Mobile Home Park or Mobile Home Subdivision means a parcel (or contiguous parcels) of land divided into two or more mobile home lots for rent or sale for which the construction of

facilities for servicing the lot on which the mobile home is to be affixed.

Expansion to an Existing Mobile Home Park or Mobile Home Subdivision means the preparation of additional sites by the construction of facilities for servicing the lots on which the mobile homes are to be affixed (including the installation of utilities, either final site grading or pouring of concrete pads, or the construction of streets).

Flood or Flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(a) the overflow of inland waters

(b) the unusual and rapid accumulation of runoff of surface waters from any source

Flood Hazard Boundary Map (FHBM) means an official map of a community, issued by the Federal Insurance Administration where boundaries of the areas of special flood hazards have been designated.

Floodplain of Flood-Prone Area means any land area susceptible to being inundated by water from any source (see definition of flooding). Generally delineated by Flood Hazard Boundary maps. Floodplain - the area adjacent to water courses that is susceptible to periods of inundation. The areas adjacent to water courses that receives the overflow of water when excess water is present.

Flood Proofing means any combination of structural and non-structural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway means the channel of a river or other water course and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Habitable Floor means any floor usable for living purposes, which includes working, sleeping, eating, cooking or recreation, or a combination thereof. A floor used only for storage purposes is not a "Habitable Floor".

Lowest Floor or First Floor Level means the habitable floor of a structure having the lowest elevation in relation to mean sea level.

Mean Sea Level means the average height of the sea for all stages of the tide.

Mobile Home means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreational vehicles or travel trailers.

New Construction means structures for which the "start of construction" commenced on or after the effective date of this ordinance.

New Mobile Home Park or Mobile Home Subdivision means a parcel (or continuous parcels) of land divided into two or more mobile home lots for rent or sale for which the construction of facilities for servicing the lot on which the mobile home is to be affixed (including, at a minimum the installation of utilities, either final site grading or the pouring of concrete pads, and the construction of streets) commenced after the adoption of this ordinance.

Site Alteration means development including, but not limited to removal of, or damage to, vegetation; by filling, ditching, dredging, draining, excavation, earth moving, water containment and changes in the natural flow regime, or the effects of such actions.

Start of Construction, for the purpose of this ordinance, means the first placement of permanent construction of a structure (other than a mobile home) on

a site, such as the pouring of slabs or footings or any work including the first state of excavation or land clearing. Permanent construction includes land preparation, such as clearing, grading and filling; it includes the installation of streets and/or walkways; it includes excavation for a basement, footings, piers or foundations or the erection of temporary forms; it includes the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not as part of the main structure. For a structure (other than a mobile home) without a basement or poured footings, the "start of construction" includes the first permanent framing or assembly of the structure or any part thereof on its piling or foundation. For mobile homes not within a mobile home park or mobile home subdivison, "start of construction" means the affixing of the mobile home to its permanent site. For mobile homes within mobile home parks or mobile home

subdivisions, "start of construction" is the date on which the construction of facilities for servicing the site on which the mobile home is to be affixed (including, at a minimum, the construction of streets, either final site grading or the pouring of concrete pads, and installation of utilities) is commenced.

Structure means a walled and roofed building that is principally above ground, as well as a mobile home.

Subdivision means the division of a parcel of land, whether improved or unimproved, into two or more lots or parcels for the purpose, whether immediate or future, of transfer of ownership if the establishment of a new road right of way is necessary to provide access to the lots or parcels. The term subdivision includes a resubdivision.

Substantial Improvement means any repair, reconstruction, or improvement of a structure, the cost of which equals

or exceeds 50 percent of the value of the structure, either (1) before the improvement or repair is started, or (2) if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition"substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions, or (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Variance means a grant of relief from the requirements of this ordinance.

Watercourse means a channel, having defined banks, which is cut by erosion of running water through turf, soil, rock or other material and over the bottom of which water flows for substantial periods of the year. The term "watercourse" shall include both the upstream and downstream portions of a watercourse which is lost in a swamp or a lake, if it emerges from such swamp or lake in a well defined channel; and it shall include any watercourse which has been improved by confining it in an artificial channel.

Selected Wetlands - Wetland types designated in the 2005 Comprehensive Plan, included as sensitive areas in the 2005 Plan or its successor.

ARTICLE III

ADMINISTRATIVE RESPONSIBILITIES

SECTION 3-1 CITY ADMINISTRATORS: The duties and responsibilities of the designated city officials under this ordinance shall include, but not be limited to the following:

- Process all development plan applications for new construction and substantial improvements and review to assure that the requirements of this ordinance have been met.
- Process applications for all appeals and variances.
- Review permit applications for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required. Letters from agencies must be received.

- Record the actual elevation (in relation to mean sea level) of the lowest floor of all new or substantially improved structures, and the actual elevation to which the new or substantially improved structures have been flood proofed.
- Submit such reports as may be required by the National Flood Insurance Program.
- Process all development plan applications which do not involve new construction and substantial improvement and review to assure that the requirements of this ordinance have been met.
- Provide inter agency coordination and cooperation in the interpretation and application of this ordinance.
- Make necessary interpretations to determine the exact location of the boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions).
- Make necessary interpretation of soil surveys to determine classification of proposed development site.
- Review for approval all subdivision proposals to determine if such proposals meet the requirements of this ordinance and whether such proposals will be reasonably safe from the base flood.

. Notify adjacent communities and the State of Florida, Department of Community Affairs, prior to any alteration or location of a watercourse, and submit evidence of such notification to the Federal Insurance Administrator.

. Review all development plan applications for commercial sites to assure that the requirements of this ordinance are met.

. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

. . Obtain, review and reasonably utilize any base flood elevation data available from a federal, state or other source, when base flood elevation data has not been provided by the Federal Insurance Administrator.

ARTICLE IV

DEVELOPMENT PLAN APPROVAL

SECTION 4-1 DEVELOPMENT PLAN APPROVAL: A development plan shall be submitted and approved prior to the issuance of any development permit for:

(1) Compliance with established review procedures.

(2) New construction or substantial improvements undertaken in an area of special flood hazard or selected wetlands.

(3) Any development undertaken within 100 feet of a watercourse.

(4) Those activities which constitute development for purposes of Article VI of this ordinance.

(5) Any development for which the Federal Insurance Administrator adopts regulations establishing standards.

SECTION 4-2 DEVELOPMENT PLAN: Prior to the issuance of any development permit for which application is made after the effective date of this ordinance, the applicant must submit a development plan, in triplicate, as part of the application, or development plans for these areas can be included as part of the general

site plans, review process (sketch plans and required drawings) that proves that the proposed development meets or exceeds the standards set forth in Articles V and VI of this ordinance. The development plan must be drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing and proposed structures; fill and storage of materials; drainage facilities and the location of the foregoing. Specifically, the following information must be provided:

(1) A legal description of the property.

(2) A site plan showing the location and dimensions of all existing and proposed structures.

(3) The elevation in relations to mean sea level of the lowest floor of all structures, certified by land surveyor or professional engineer registered in the State of Florida.

(4) A description prepared by an engineer of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

(5) A certificate from a registered professional engineer or architect that any non-residential floodproofed structure meets the floodproofing

criteria set forth in Section 5-2(2).

(6) A soils analysis prepared by an engineer or the U.S. Soil Conservation Service delineating the uplands and wetland soils associations.

SECTION 4-3 APPLICATION PROCEDURES: Application for development plan for new construction or substantial improvements shall be submitted to the applicable city agencies. Applications shall be on such form and accompanied by such fee as may be established by resolution of the Council. The application shall be reviewed within ten working days for a determination of sufficiency. If insufficient, the application shall be returned to the applicant for completion. If sufficient, the application shall be approved, approved with modifications or conditions, or disapproved within ten working days or, if other authorization to commence development is being sought, simultaneously with such other authorization (such as a building permit or subdivision plan approval).

ARTICLE V

FLOODPLAIN PROTECTION STANDARDS

SECTION 5-1 GENERAL STANDARDS: The following minimum standards shall apply to new construction and substantial improvements in all areas of special flood hazard, to any development within 100 feet of a watercourse:

(1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

(2) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(3) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

(4) All new and replacement water supply systems shall be designed so as not to allow infiltration of flood waters into the systems and discharge from the systems into flood waters.

(5) All new and replacement sanitary sewage systems

shall be designed so as not to allow infiltration of flood waters into the system and discharge from the systems into flood waters.

(6) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(7) The cumulative effect of proposed development, when combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one foot at any point within Duval County.

(8) Proposed development shall not affect a change in the flood pattern in such a manner that would cause lands not previously flood-prone to become flood-prone.

(9) The flood carrying capacity within any altered or relocated watercourse must be maintained.

SECTION 5-2 SPECIFIC STANDARDS: The following minimum standards shall apply in all areas of special flood hazard where base flood elevation data has been provided:

(1) Residential Construction: New construction or

substantial improvement of any residential structure shall have the lowest floor elevated to or above the base flood elevation.

(2) Nonresidential Construction: New construction or substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor elevated to the level of the base flood elevation or, together with attendant utility and sanitary facilities be floodproofed. A registered professional engineer or architect shall certify that the standards of this section are satisfied. Such certification must be submitted to the Building Official.

(3) Mobile Homes: No mobile home shall be placed in a floodway except in an existing mobile home park or existing mobile home subdivision. All mobile homes shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors. Specific requirements shall be that:

(a) Over-the-top ties be provided at each of the four corners of the mobile home, and two (2) additional ties per side at intermediate lo-

cations for mobile homes fifty (50) feet or longer, and one additional tie per side for mobile homes less than fifty (50) feet in length.

(b) Frame ties be provided at each corner of the home with five additional ties per side at intermediate points for mobile homes fifty feet or longer, and four additional ties per side for mobile homes less than fifty (50) feet in length.

(c) All components of the anchoring system must be capable of carrying a force of 4,800 pounds, and

(d) Any additions to the mobile home must be similarly anchored.

(4) Subdivision Proposals: All subdivision proposals and other proposed developments shall be reviewed by the appropriate city agency if the proposal is in an area of special flood hazard, it shall be reviewed to assure that the following standards are met:

(a) All such proposals shall be reasonably safe

from flood waters resulting from the base flood.

(b) All such proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

(c) Base flood elevation data shall be provided for all such proposals.

(d) Roads shall be reasonably safe from flood waters resulting from the base flood.

ARTICLE VI

WATER MANAGEMENT STANDARDS

SECTION 6-1 GENERAL STANDARDS: The following minimum standards shall apply to all development which occurs within an area of special flood hazard, to any man-made change to improved or unimproved real estate, in or adjacent to selected wetlands, including, but not

limited to, mining, dredging, filling, grading, paving, drilling, (except to obtain soil and mineral samples) or alteration operations within 100 feet of a water-course.

(1) The development shall provide for the release of surface water runoff, collected or uncollected, in a manner approximating the natural, surface water flow regime of the area.

(2) Treatment of storm water runoff shall be provided by settling ponds, soil fixatives, control of non-point chemical pollutants or the equivalent structures or systems when such runoff may contaminate surface or ground water resources or if direct discharge has not been approved by applicable agencies.

(3) (a) Except as otherwise provided for, site alternation shall be limited in accordance with the natural drainage capabilities of the major soil associations. The amount of site alteration in or adjacent to wetlands shall be limited to and guided by best management be guided by best management practices by wetland type. Upland areas are

only limited by the type of development that will be adjacent to sensitive wetlands. Wetland areas are limited in most cases to 10% alteration within the property boundaries. Covenants shall be placed on deeds of property, subdivisions, plats/or plat approval containing wetland areas that have been altered to the 10% limit. Property using the allowable 10% wetland alteration may not be subdivided or resell said property and expect to alter an additional 10% of the wetlands. Application for permit automatically allows city officials entry to the property under alteration for the purpose of inspection in regard to the requirements of this ordinance.

(b) It shall be the responsibility of the developer to provide the information which will allow satisfactory determination of whether such lands lie within the upland areas or wetland areas or any combination thereof. Soil types can be used in this determination. The U.S. Soil Conservation Service Soil Survey for Duval County may be used as a guide.

This determination shall be made by an

engineer or the U. S. Soil Conservation Service.

(4) Soils exposed during site alteration shall be stabilized and redrained in ponds or equivalent structures or systems maintained in order to prevent runoff and siltation from leaving the construction site.

(5) Any altered site shall be revegetated, such revegetation to be substantially completed within 30 days following completion of a development and maintain a 90% survival rate of the plants. Revegetation shall be accomplished with pre-existing species, except that exotic species shall not be replanted or propagated without prior authorization.

(6) Development shall not detrimentally change the quantity of ground and surface water available for recharge to the shallow aquifer.

(7) The development shall not impair the water retention and filtering capacity of wetlands soils or vegetation.

(8) New drainage facilities shall release water in a manner approximating the natural local surface

flow regime through a retention pond or equivalent structure or system, either on site or to a natural retention or natural filtration and flow area. New drainage facilities shall also maintain a ground water level sufficient to protect wetland vegetation through the use of weirs or equivalent structures or systems. Said facilities shall not retain, divert or otherwise block or channel the naturally occuring flows in a strand, slough, wetland or flood plains.

(9) Site alteration shall be permitted only when such alteration will not cause siltation of wetlands or reduce the natural retention and filtering capabilities of wetlands.

(10) Ground water withdrawal shall comply with the standards and regulations of the City of Jacksonville, the State of Florida, the St. Johns River Water Management District or their successor agency.

ARTICLE VII

DENSITY TRANSFERS/DENSITY CREDITS

SECTION 7-1 DENSITY TRANSFERS/DENSITY CREDITS: Any portion of a residential subdivision which lies within an area of special flood hazard or selected wetlands may be given density credits equal in value to the density of the residential development allowed by the zoning of the property. The landowner shall have the option of transferring these density credits only to portions of the same proposed residential subdivision which lie outside special flood hazard areas or selected wetlands, thereby maintaining the same total density within the subdivision as if the special flood hazard area or wetland had been developed. This provision shall be applied only if the Planning Director and the Director of Public Works find that the following conditions will be met.

(1) The construction of the proposed residential subdivision without density credit transfer will have adverse effects on existing structures and uses in

the event that flooding occurs or adverse effects to wetlands and natural water bodies are likely to result; and

(2) The density credit transfer will not increase the density of residential development on the land to which the transfer occurs by more than the density of the residential development on the total land area (boundaries of the development or subdivision) permissible prior to the transfer. If this subsection can be satisfied by density credit transfer from only a portion of the land lying within a special flood hazard area, then this section shall apply to said area.

(3) On property with more than 50% wetlands within its boundaries, 50% of the wetland may be used to calculate density transfers.

(4) The density credit transfer shall be consistent with the permitted uses allowed by the zoning classification.

(5) The density credit transfer shall only be allowed in subdivisions developed and approved pursuant to the City of Jacksonville Regulations and the fact of the density credit transfer shall be noted on the face of the plat in such form as prescribed by the City. Said notice shall constitute a covenant running with the land, enforceable by the City.

ARTICLE VIII

REMEDIAL PROVISIONS

SECTION 8-1 ADMINISTRATIVE APPEAL: The Planning Commission shall hear and decide administrative appeals. Persons bringing such appeals must present competent evidence to refute the administration decision.

SECTION 8-2 VARIANCES: The Planning Commission shall hear and decide requests for variances in accordance with the following provisions:

(1) In order to grant a variance from any provision of this ordinance the Planning Commission must determine that:

(a) there has been a showing of good and sufficient cause, in determining good and sufficient cause exists for granting a variance, the following factors will be considered:

(1) economic hardship

(2) aesthetic deficiencies

(3) adverse environmental impacts

(b) special conditions and circumstances exist which are peculiar to the activity, land, structure, or building involved and which are not applicable to other activities, lands, structures, or buildings in the same area of special flood hazard,

(c) the special conditions and circumstances did not result from the actions of the applicant,

(d) failure to grant the variance would result in exceptional hardship to the applicant.

(e) granting the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances, and

(f) granting the variance will not cause unnecessary destruction of wetlands or wetland function.

(g) the variance is the minimum necessary to afford relief.

(2) Generally, the granting of a variance from the provisions of Article V shall be limited to new construction or substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level. While deviations from this limitation may occur, as the lot size increases, the technical justification required for issuing a variance shall also increase.

(3) Planning Commission may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(4) Variances shall not be issued within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.

(5) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or a State Inventory of Historic Places,

without regard to the procedures set forth in this Article.

SECTION 8-3 PROCEDURE: Applications for administrative appeals and variances shall be submitted to the appropriate city agency, together with such fee and upon such form as the City Council shall prescribe by resolution. Applications for a variance shall also be accompanied by a development plan application. Upon receipt of a complete application, a public hearing shall be scheduled. Notice of said hearing shall be published in a newspaper of general circulation not less than ten (10) days prior to the date of the hearing. The applicant shall be given notice by mail.

ARTICLE IX

SECTION 9-1 PENALTY: Violation of this ordinance shall be punishable by a fine not to exceed $500.00 a day or by imprisonment in the county jail not to exceed 60 days or by both such fine and imprisonment. Each day shall

constitute a separate violation. Violations of this ordinance shall also be subject to mitigation procedures deemed appropriate to restore as much as possible the natural function of the area.

SECTION 9-2 PROCEEDINGS FOR INJUNCTION: In addition to the remedies provided herein, the City's General Counsel is authorized to make application in Circuit Court for an injunction restraining any person from violating or continuing to violate any of the provisions of this ordinance or from failing or refusing to comply with the requirements of this ordinance. Such application for injunction may also seek entry of a court order requiring restoration of any unlawfully altered land.

SECTION 9-3 SEVERABILITY: The provisions of this ordinance are severable, and if any provision or part thereof shall be held invalid or unconstitutional or inapplicable to any person or circumstances, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of this ordinance.

SECTION 9-5 EFFECTIVE DATE: This ordinance shall take effect 30 days after passage and signing.

ORDINANCE

AN ORDINANCE PRESCRIBING MINIMUM WATER MANAGEMENT STANDARDS FOR DEVELOPMENT OF AREAS OF SPECIAL FLOOD HAZARD; FLOODPLAINS AND SELECTED WETLANDS; PRESCRIBING REQUIREMENTS AND PROCEDURES FOR DEVELOPMENT PLAN APPROVAL; PROVIDING FOR THE ADMINISTRATION OF SAID REGULATIONS; PROVIDING PROCEDURES FOR APPEALS AND VARIANCES; PROVIDING A PENALTY; PROVIDING FOR MITIGATION; PROVIDING FOR INJUNCTIONS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

ARTICLE I

GENERAL PROVISIONS

SECTION 1-1 SHORT TITLE: This Ordinance shall be known as the CITY OF JACKSONVILLE SURFACE WATER MANAGEMENT CODE.

SECTION 1-2 PURPOSE: The purposes of this Ordinance are to: 1) mimimize the adverse impacts of development on resources of the potable shallow water aquifer and flood detention areas, 2) promote the public health, safety and general welfare, 3) minimize public and private losses due to flood conditions in specific areas, 4) reduce the potential burden of all taxpayers in the County through the use of public expenditures for flood control projects and infrastructure expansion and maintenance, 5) restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion in flood conditions, 6) protect the storage capacity of flood plains, 7) prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands, 8) protect the normal quantity, quality and flow of ground water and surface water which are necessary for the protection of resources of state, regional and local concern, 9) protect the water available for aquifer recharge, 10) protect the normal supply of ground and surface water, 11) protect the water retention and filtration capabilities of wetlands, 12) protect the general biological functions of wetlands,

13) protect the natural flow regime of drainage basins and 11) protect the design capacity of flood-detention areas and the water management objectives of these areas through the maintenance of hydrologic characteristics of drainage basins and wetlands.

SECTION 1-3 APPLICABILITY: The regulations herein set forth shall apply in all areas of selected wetlands and to all lands lying within 100 feet of a watercourse within the appropriate service districts excluding the unconsolidated Beaches and Baldwin area.

SECTION 1-4 EXEMPTIONS: The following activities are exempt from the provisions of this Ordinance:

Any emergency activity which is immediately necessary for the protection and preservation of life or property or for the protection of preservation of a natural resource. Such emergency activities include, for example, search and rescue operations; preventive and remedial activities related to large-scale contamination of streams or other bodies of water, floods, hurricanes and other storms and public health concerns. Within five (5) days after the commencement of such emergency involving the undertaking of any activity which otherwise would be treated as a regulated activity under this Ordinance, the person chiefly responsible for undertaking

such emergency activity shall send a written statement to the Public Works Department setting forth the pertinent facts regarding such emergency, incuding an explanation of the life, property or resource such activity was designated to protect or preserve.

SECTION 1-5 PROVISIONS DECLARED TO BE MINIMUM REQUIREMENTS: The provisions of this Ordinance are intended to be minimum requirements and shall take precedence over any less restrictive conflicting local laws, ordinances or codes.

SECTION 1-6 WARNING AND DISCLAIMER OF LIABILITY: The degree of flood protection and surface and ground water protection required by this Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such area will be free from flooding or flood damages. This Ordinance shall not create liability on the part of the City Council or by any official or employee of the City of Jacksonville for any flood damages or adverse effects of changes in quantity or quality of surface or ground water that result from reliance on this Ordinance or any administrative decision lawfully made thereunder.

ARTICLE II

DEFINITIONS

SECTION 2-1 DEFINITIONS: Unless specifically defined below, words or phrases used in this Ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this Ordinance its most reasonable application.

Administrative Appeal means a request for review of any administrative decision or interpretation made under this Ordinance.

Aquifer means an underground formation, or group of formations, or part of a formation, that is permeable enough to transmit and store usable quantities of water.

Area of Special Flood Hazard is the land in the flood plain subject to a one percent (1%) or greater change of flooding in any given year and shown as "A" zones and "V" zones on the Flood Hazard Boundary Map.

Council means the City Council of the City of Jacksonville, Florida.

City Administrator includes, but is not limited to, the City of Jacksonville's Directors of Public Works, Planning Department and Building and Zoning or their designated staff.

Density Credits means a value equal to the maximum number of residential dwelling (family) units which may be constructed on a given amount of land under the existing zoning classification of that land, usually expressed in dwelling units per acre.

Density Transfer - moving the allowable density of a building site from one location to another.

Developer means any person, including a governmental agency, undertaking development.

Development means:

(a) any man-made change to improved or unimproved real estate including, but not limited to, mining, dredging, filling, grading, paving, drilling, (except to obtain soil and mineral samples) or excavation operations. In this Ordinance, development means:

(1) The establishment of a subdivision.

(2) The construction and maintenance of a road, whether paved or unpaved, and related to drainage systems.

(3) The establishment of a mobile home park.

(4) The clearing of land as an adjunct of construction.

(5) The deposit of refuse, solid or liquid waste or fill, on a parcel of land.

(6) Construction and maintenance activities by any utility company.

(7) The use of land for the purpose of growing plants, crops, trees or other agricultural or forestry products; raising livestock; or other agricultural purposes, provided, however, that such land use shall only be subject to the requirements of subsections 6-1(1) and 6-1(2) of Article VI.

(8) New construction.

(9) Substantial improvements.

The following activities shall not constitute development for purposes of Article VI (Water Management Standards):

Construction or substantial improvement of a single family residence in which the owner of the property, at the time of application for a building permit intends to reside upon its completion.

- Modification of any existing structure that does not constitute a substantial improvement.
- Installation of one uninhabited residential accessory structure per lot. (Principal structure and accessory buildings cannot exceed 35% of the lot coverage of the zoning district of which they are a part.)

Development Permit includes any building permit, plat approval or subdivision plan approval, utility permit, variance or other action having the effect of permitting development.

Engineer means a civil engineer registered and currently licensed to practice in the State of Florida.

Flood or Flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(a) the overflow of inland waters

(b) the unusual and rapid accumulation of runoff of surface waters from any source

Flood Hazard Boundary Map (FHBM) means an official map of a community, issued by the Federal Insurance Administration where boundaries of the areas of special flood hazards have been designated.

Floodplain of Flood-Prone Area means any land area susceptible to being inundated by water from any source (see definition of flooding). Generally delineated by Flood Hazard Boundary maps. Floodplain - the area adjacent to water courses that is susceptible to periods of inundation. The areas adjacent to water courses that receives the overflow of water when excess water is present.

Flood Proofing means any combination of structural and non-structural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

New Construction means structures for which the "start of construction" commenced on or after the effective date of this ordinance.

Site Alteration means development including, but not limited to removal of, or damage to, vegetation; by filling, ditching, dredging, draining, excavation, earth moving, water containment and changes in the natural flow regime, or the effects of such actions.

Start of Construction, for the purpose of this ordinance, means the first placement of permanent construction of a structure (other than a mobile home) on a site, such as the pouring of slabs or footings or any work including the first state of excavation or land clearing. Permanent construction includes land preparation, such as clearing, grading and filling; it includes the installation of streets and/or walkways;

it includes excavation for a basement, footings, piers or foundations or the erection of temporary forms; it includes the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not as part of the main structure. For a structure (other than a mobile home) without a basement or poured footings, the "start of construction" includes the first permanent framing or assembly of the structure or any part thereof on its piling or foundation. For mobile homes not within a mobile home park or mobile home subdivison, "start of construction" means the affixing of the mobile home to its permanent site. For mobile homes within mobile home parks or mobile home subdivisions, "start of construction" is the date on which the construction of facilities for servicing the site on which the mobile home is to be affixed (including, at a minimum, the construction of streets, either final site grading or the pouring of concrete pads, and installation of utilities) is commenced.

Variance means a grant of relief from the requirements of this ordinance.

Watercourse means a channel, having defined banks, which is cut by erosion of running water through turf, soil, rock or other material and over the bottom of which water flows for substantial periods of the year. The term "watercourse" shall include both the upstream and downstream portions of a watercourse which is lost in a swamp or a lake, if it emerges from such swamp or lake in a well defined channel; and it shall include any watercourse which has been improved by confining it in an artificial channel.

Selected Wetlands - Wetland types designated in the 2005 Comprehensive Plan, included as sensitive areas in the 2005 Plan or its successor.

ARTICLE III

ADMINISTRATIVE RESPONSIBILITIES

SECTION 3-1 CITY ADMINISTRATORS: The duties and responsibilities of the designated city officials under this ordinance shall include, but not be limited to the following:

- Process all development plan applications for new construction and substantial improvements and review to assure that the requirements of this ordinance have been met.
- Process applications for all appeals and variances.
- Review permit applications for proposed development to assure that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required. Letters from agencies must be received.

- Process all development plan applications which do not invqlve new construction and substantial improvement and review to assure that the requirements of this ordinance have been met.
- Provide inter agency coordination and cooperation in the interpretation and application of this ordinance.
- Make necessary interpretations to determine the exact location of the boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions).
- Make necessary interpretation of soil surveys to determine classification of proposed development site.
- Review for approval all subdivision proposals to determine if such proposals meet the requirements of this ordinance and whether such proposals will be reasonably safe from the base flood.
- Notify adjacent communities and the State of Florida, Department of Community Affairs, pripr to any alteration or location of a watercourse, and submit evidence of such notification to the Federal Insurance Administrator.
- Review all development plan applications for commercial sites to assure that the requirements of this ordinance are met.

. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

. Obtain, review and reasonably utilize any base flood elevation data available from a federal, state or other source, when base flood elevation data has not been provided by the Federal Insurance Administrator.

ARTICLE IV

DEVELOPMENT PLAN APPROVAL

SECTION 4-1 DEVELOPMENT PLAN APPROVAL: A development plan shall be submitted and approved prior to the issuance of any development permit for:

(1) Compliance with established review procedures.

(2) New construction or substantial improvements undertaken in an area of special flood hazard or selected wetlands.

(3) Any development undertaken within 100 feet of a watercourse.

SECTION 4-2 DEVELOPMENT PLAN: Prior to the issuance of any development permit for which application is made after the effective date of this ordinance, the applicant must submit a development plan, in triplicate, as part of the application, or development plans for these areas can be included as part of the general site plans, review process (sketch plans and required drawings) that proves that the proposed development meets or exceeds the standards set forth in this ordinance. The development plan must be drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing and proposed structures; fill and storage of materials; drainage facilities and the location of the foregoing. Specifically, the following information must be provided:

(1) A legal description of the property.

(2) A site plan showing the location and dimensions of all existing and proposed structures.

(3) A description prepared by an engineer of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

(4) A soils analysis prepared by an engineer or the U.S. Soil Conservation Service delineating the uplands and wetland soils associations.

SECTION 4-3 APPLICATION PROCEDURES: Application for development plan for new construction or substantial improvements shall be submitted to the applicable city agencies. Applications shall be on such form and accompanied by such fee as may be established by resolution of the Council. The application shall be reviewed within ten working days for a determination of sufficiency. If insufficient, the application shall be returned to the applicant for completion. If sufficient, the application shall be approved, approved with modifications or conditions, or disapproved within ten working days or, if other authorization to commence development is being sought, simultaneously with such other authorization (such as a building permit or subdivision plan approval).

ARTICLE V

WATER MANAGEMENT STANDARDS

SECTION 5-1 GENERAL STANDARDS: The following minimum standards shall apply to all development which occurs within an area of special flood hazard, to any man-made change to improved or unimproved real estate, in or adjacent to selected wetlands, including, but not

limited to, mining, dredging, filling, grading, paving, drilling, (except to obtain soil and mineral samples) or alteration operations within 100 feet of a water-course.

(1) The development shall provide for the release of surface water runoff, collected or uncollected, in a manner approximating the natural, surface water flow regime of the area.

(2) Treatment of storm water runoff shall be provided by settling ponds, soil fixatives, control of non-point chemical pollutants or the equivalent structures or systems when such runoff may contaminate surface or ground water resources or if direct discharge has not been approved by applicable agencies.

(3) (a) Except as otherwise provided for, site alternation shall be limited in accordance with the natural drainage capabilities of the major soil associations. The amount of site alteration in or adjacent to wetlands shall be guided by best management practices by wetland type. Upland areas are

only limited by the type of development that will be adjacent to sensitive wetlands. Wetland areas are limited in most cases to 10% alteration within the property boundaries. Covenants shall be placed on deeds of property, subdivisions, plats/or plat approval containing wetland areas that have been altered to the 10% limit. Property using the allowable 10% wetland alteration may not be subdivided or resell said property and expect to alter an additional 10% of the wetlands. Application for permit automatically allows city officials entry to the property under alteration for the purpose of inspection in regard to the requirements of this ordinance.

(b) It shall be the responsibility of the developer to provide the information which will allow satisfactory determination of whether such lands lie within the upland areas or wetland areas or any combination thereof. Soil types can be used in this determination. This determination shall be made by an

engineer or the U. S. Soil Conservation Service.

(4) Soils exposed during site alteration shall be stabilized and redrained in ponds or equivalent structures or systems maintained in order to prevent runoff and siltation from leaving the construction site.

(5) Any altered site shall be revegetated, such revegetation to be substantially completed within 30 days following completion of a development and maintain a 90% survival rate of the plants. Revegetation shall be accomplished with pre-existing species, except that exotic species shall not be replanted or propagated without prior authorization.

(6) Development shall not detrimentally change the quantity of ground and surface water available for recharge to the shallow aquifer.

(7) The development shall not impair the water retention and filtering capacity of wetlands soils or vegetation.

(8) New drainage facilities shall release water in a manner approximating the natural local surface

flow regime through a retention pond or equivalent structure or system, either on site or to a natural retention or natural filtration and flow area. New drainage facilities shall also maintain a ground water level sufficient to protect wetland vegetation through the use of weirs or equivalent structures or systems. Said facilities shall not retain, divert or otherwise block or channel the naturally occuring flows in a strand, slough, wetland or flood plains.

(9) Site alteration shall be permitted only when such alteration will not cause siltation of wetlands or reduce the natural retention and filtering capabilities of wetlands.

(10) Ground water withdrawal shall comply with the standards and regulations of the City of Jacksonville, the State of Florida, the St. Johns River Water Management District or their successor agency.

ARTICLE VI

DENSITY TRANSFERS/DENSITY CREDITS

SECTION 6-1 DENSITY TRANSFERS/DENSITY CREDITS: Any portion of a residential subdivision which lies within an area of special flood hazard or selected wetlands may be given density credits equal in value to the density of the residential development allowed by the zoning of the property. The landowner shall have the option of transferring these density credits only to portions of the same proposed residential subdivision which lie outside special flood hazard areas or selected wetlands, thereby maintaining the same total density within the subdivision as if the special flood hazard area or wetland had been developed. This provision shall be applied only if the Planning Director and the Director of Public Works find that the following conditions will be met.

(1) The construction of the proposed residential subdivision without density credit transfer will have adverse effects on existing structures and uses in

the event that flooding occurs or adverse effects to wetlands and natural water bodies are likely to result; and

(2) The density credit transfer will not increase the density of residential development on the land to which the transfer occurs by more than the density of the residential development on the total land area (boundaries of the development or subdivision) permissible prior to the transfer. If this subsection can be satisfied by density credit transfer from only a portion of the land lying within a special flood hazard area, then this section shall apply to said area.

(3) On property with more than 50% wetlands within its boundaries, 50% of the wetland may be used to calculate density transfers.

(4) The density credit transfer shall be consistent with the permitted uses allowed by the zoning classification.

(5) The density credit transfer shall only be allowed in subdivisions developed and approved pursuant to the City of Jacksonville Regulations and the fact of the density credit transfer shall be noted on the face of the plat in such form as prescribed by the City. Said notice shall constitute a covenant running with the land, enforceable by the City.

ARTICLE VII

REMEDIAL PROVISIONS

SECTION 7-1 ADMINISTRATIVE APPEAL: The Planning Commission shall hear and decide administrative appeals. Persons bringing such appeals must present competent evidence to refute the administration decision.

SECTION 7-2 VARIANCES: The Planning Commission shall hear and decide requests for variances in accordance with the following provisions:

(1) In order to grant a variance from any provision of this ordinance the Planning Commission must determine that:

(a) there has been a showing of good and sufficient cause, in determining good and sufficient cause exists for granting a variance, the following factors will be considered:

(1) economic hardship

(2) aesthetic deficiencies

(3) adverse environmental impacts

(b) special conditions and circumstances exist which are peculiar to the activity, land, structure, or building involved and which are not applicable to other activities, lands, structures, or buildings in the same area of special flood hazard,

(c) the special conditions and circumstances did not result from the actions of the applicant,

(d) failure to grant the variance would result in exceptional hardship to the applicant.

(e) granting the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances, and

(f) granting the variance will not cause unnecessary destruction of wetlands or wetland function.

(g) the variance is the minimum necessary to afford relief.

(2) Planning Commission may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(3) Variances shall not be issued within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.

(4) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or a State Inventory of Historic Places, without regard to the procedures set forth in this Article.

SECTION 7-3 PROCEDURE: Applications for administrative appeals and variances shall be submitted to the appropriate city agency, together with such fee and upon such form as the City Council shall prescribe by resolution. Applications for a variance shall also be accompanied by a development plan application. Upon receipt of a complete application, a public hearing shall be scheduled. Notice of said hearing shall be published in a newspaper of general circulation not less than ten (10) days prior to the date of the hearing. The applicant shall be given notice by mail.

ARTICLE VIII

SECTION 8-1 PENALTY: Violation of this ordinance shall be punishable by a fine not to exceed $500.00 a day or by imprisonment in the County jail not to exceed 60 days or by both such fine and imprisonment. Each day shall constitute a separate violation. Violations of this ordinance shall also be subject to mitigation procedures deemed appropriate to restore as much as possible the natural function of the area.

SECTION 8-2 PROCEEDINGS FOR INJUNCTION: In addition to the remedies provided herein, the City's General Counsel is authorized to make application in Circuit Court for an injunction restraining any person from violating or continuing to violate any of the provisions of this ordinance or from failing or refusing to comply with the requirements of this ordinance. Such application for injunction may also seek entry of a court order requiring restoration of any unlawfully altered land.

SECTION 8-3 SEVERABILITY: The provisions of this ordinance are severable, and if any provision or part thereof shall be held invalid or unconstitutional or inapplicable to any person or circumstances, such invalidity, unconstitutionality, or inapplicability shall not affect or impair the remaining provisions of this ordinance.

SECTION 8-4 EFFECTIVE DATE: This ordinance shall take effect 30 days after passage and signing.

PROPOSED AMENDMENTS TO SUBDIVISION REGULATIONS

SECTION 654.107 Preapplication Procedure

AMENDMENT 654.107-b-(1)

(1) Twelve copies or such other number as required by the planning staff of a written statement generally describing the condition of the site and the proposed development of the entire subdivison. This statement shall include data on existing covenants, any wetland areas, either freshwater or salt marsh (tidal) wetlands, as defined by the 2005 Comprehensive Plan for Jacksonville, Duval County, existing soils and soil characteristics and information describing the subdivision proposal such as number of residential lots, typical lot width and depth, public areas and other information the developer may consider pertinent.

AMENDMENT 654.107-b-(2)

(2) Twelve copies or such other number as required by the planning staff of a sketch plan including the name and location of the proposed subdivision; name, telephone number and address of the developer; the date and North point; the street, lot and block layout; a layout of adjoining streets and platted lots; the location of existing improvements which should be considered; and topgraphic contour lines at two-foot intervals where the ground slope is less than three percent and five-foot contour intervals where the ground slope is greater than three percent unless a greater interval is sufficient to define requirements; general location and size of existing wetlands, either freshwater or salt marsh (tidal) wetlands, as defined in the 2005 Comprehensive Plan and proposed uses and other considerations. Elevation shall be based on the National Ocean Survey datum plane and the plan be drawn to scale of not more than one inch equals one hundred feet.

SECTION 654.108 - Procedure for approval of final construction plans for required improvements; conditional approval of preliminary plat.

AMENDMENT - 654.108-b-Add (12)

(b) Preliminary plat. Upon approval of the sketch plan as outlined in 654.107, the developer will prepare a preliminary plat at a scale of not more than one hundred feet to the inch together with improvements and construction plans and other supplementary material as follows:

Add - (12) general location of existing wetlands, fresh water or salt marsh (tidal) wetlands that are adjacent or connected to water bodies or in the case of isolated (not hydrologically connected) wetlands 5 acres in size or larger and proposed use of these areas. Wetlands as defined above will not be included in subdivision lots as buildable area.

SECTION 654.109 - Procedure for approval of final plat.

AMENDMENT - 654.109-a-(11)

Add - (11) existing wetlands, fresh water and salt marsh (tidal) wetlands, as defined by the 2005 Comprehensive Plan for Jacksonville and approved use of these areas. Wetlands as defined in the 2005 Comprehensive Plan will not be included in subdivision lots as buildable area.

CHAPTER 654
SUBDIVISION REGULATIONS

654.101 Short title. This chapter shall be known and may be cited as the *Code of Subdivision Regulations, City of Jacksonville.*

History.—Ord. 68-57-112, s. 1; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.—Former s. 712.101.

654.102 Purpose and intent. It is determined and declared:

(a) Land subdivision is the first step in community development. Once land has been subdivided into streets, lots and blocks and publicly recorded, the correction of defects is costly and difficult. Subdivided land sooner or later becomes a public responsibility, in that roads, drainage and utilities must be maintained and various customary municipal services must be provided. The welfare of the entire City is directly affected by land subdivision. It is to the interest of all taxpayers and citizens, the developer and future residents that subdivisions be conceived, designed and developed in accordance with sound practice and appropriate standards.

(b) The intent and purpose of these regulations is to provide for the harmonious development of the City; to secure a coordinated layout and adequate provision for traffic within subdivisions and with other existing or planned streets; and to secure adequate provision for light, air, recreation, transportation, potable water, flood prevention, drainage, sewers, other sanitary facilities and City services. It is also the legislative intent that the guidelines and general standards set out in the comprehensive plan adopted under Chapter 650 shall be observed in the administration of these regulations, so that the growth and development of subdivisions which are approved under this chapter are consistent with the comprehensive plan.

(c) In addition to the minimum requirements for construction of such improvements as roads and drainage, compliance with the intent of these regulations requires that good design be practiced in subdivision planning, valuable and scenic natural features be conserved and adequate open space be made available for public use. Subdivision design should be adapted to the peculiarities and opportunities of the site, should utilize contemporary imaginative design and should avoid monotonous repetition of pattern, gridiron lay-outs and long, straight minor or collector streets. Size, shape and orientation of lots and blocks should be carefully considered with relation to future use of the various lots to be created.

(d) It is intended that this chapter be liberally construed to accomplish its stated purposes.

History.—Ord. 68-57-112, s. 2; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-1778-270, s. 1; Ord. 80-354-351, s. 8; Ord. 83-591-400, s. 1.
Note.—Former s. 712.102.

654.103 Jurisdiction. The regulations herein set out shall apply to all lands within the

City, except within the Second, Third, Fourth and Fifth Urban Services Districts. No land shall be subdivided nor a building or structure or a part thereof constructed in an area that is subdivided after July 11, 1978, unless the subdivision conforms to the provisions of this chapter.

History.–Ord. 68-57-112, s. 3; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.103.

654.104 Applicability. In order to subdivide land and file a plat thereof, the requirements set out in this chapter shall be met and the procedures herein set forth shall be followed. This chapter is supplemental to and does not supersede applicable State statutes.

History.–Ord. 68-57-112, s. 4; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.104.

654.105 Definitions. As used in this chapter.

(a) *abutting property* means property that is immediately adjacent to property that is subject to review under these regulations or property that is located immediately across a road or public right-of-way from the property that is subject to review under these regulations.

(b) *alley* means a right-of-way which affords only a secondary means of access to property abutting thereon.

(c) *bicycle path* means land that has been trodden, prepared or constructed in such a way as to permit the continuous passage of persons riding bicyles. The path should be separated and/or protected by physical barriers from vehicular traffic and devoted to the primary use of bicycle traffic.

(d) *block* includes a tier or group of lots existing within well-defined and fixed boundaries, usually being an area surrounded by streets or other physical barriers and having an assigned number, letter or other name through which it may be identified.

(e) *block* or *lot corner* means an angle point in the boundary of a block or lot.

(f) *building* includes the word *structure* and shall be construed as if followed by the phrase *or part thereof*.

(g) *cash* or *cash deposit* means cash, cashier's and certified checks for immediate payment to the City, cash deposited in accounts subject to the control of the City and certificates of cash deposited, assigned and delivered to the City.

(h) *community* is a development offering eventually all social and physical aspects of a full living environment. A full living environment includes not only housing in a variety of types and size ranges but also opportunities for employment as well as facilities for educational, recreational and cultural participation.

(i) *Department* means the Public Works Department.

(j) *developer* means a person or his duly authorized agent who undertakes the subdivision of land as defined herein. The term *developer* includes the term *subdivider*.

(k) *Director* means the Director of Public Works.

(l) *easement* means an interest in land granted for a limited-use purpose but not conveying title to real property.

(m) *engineer* means an engineer licensed in Florida.

(n) *horse trail* means land that has been cleared, trodden, prepared or constructed in a fashion to permit the passage of a person or persons on horseback. The path should be physically separate from vehicular traffic at all points except for crossings.

(o) *improvements, public* means any of the following, which are listed only for the purpose of illustration and emphasis: street pavement, with or without curbs and gutters; sidewalks; alley pavement; water mains; sanitary sewers, storm sewers or storm drainage; and street name signs..

(p) *land* includes the words *water, marsh* or *swamp*.

(q) *lot* includes the words *plat* or *parcel*. A lot or plot is a parcel of land of at least sufficient size to meet the minimum requirements of the Zoning Code as to use, coverage and area and to provide the yards and open spaces required by the Zoning Code. A lot is also identified as a single unit in a subdivision.

(r) *lot depth* has the same meaning as in the Zoning Code.

(s) *lot width* has the same meaning as in the Zoning Code.

(t) *neighborhood* is a geographic area within which residents may all conveniently share common services and facilities required in the vicinity of their dwellings. Neighborhood boundaries are generally set either by natural

features, such as topography, stream valleys or terrain; by major streets including freeways; by artifical features such as railroads, power lines or other development obstruction; or by planning elements such as recreational and other open space uses or community facilities.

(u) *new town* is a land development project having acreage sufficiently large to encompass land use elements of residence, business and industry which, when developed, provides:

(1) opportunities for living and working within the community.

(2) a full spectrum of housing types and price ranges.

(3) permanent open space in passive and active recreational areas with sufficient land on the periphery to protect the identity.

(4) strong aesthetic controls.

To these specifications is added sufficient financing to provide the moneys for initial development needs.

(v) *paving width* means the horizontal width of a paved surface, excluding curb and gutter.

(w) *permanent reference monument (PRM)* means a concrete monument with iron pipe, iron pin, or cross-cut designating a specific point.

(x) *planning staff* means the technical staff of the Regulatory Division.

(y) *plat* means a subdivision plan of real property which has been subdivided into lots, blocks, plots or parcels and:

(1) *preliminary plat* means a map or sketch of a proposed land subdivision showing the character and proposed layout of the tract in sufficient detail to indicate the suitability of the proposed subdivision of land and meeting the requirements of s. 654.108(b).

(2) *final plat* means a finished drawing of a subdivision showing completely and accurately all legal and engineering information and certification necessary for recording.

(3) *plat of record* means a plat that conforms to the requirements of Chapter 177, Florida Statutes and that has been accepted, recorded and numbered, as to plat book and page, by the local government authorities as being in conformance with its requirements.

(z) *right-of-way* means land to be used for a street, alley, walkway, water, sewer or drainage facility or other public purpose.

(aa) *sidewalk* means an area prepared and intended primarily for pedestrians, excluding self-propelled vehicles.

(bb) *sight distance* means the maximum extent of unobstructed vision in a horizontal plane along a street located at a given point on the street.

(cc) *street* means a thoroughfare which affords the principal means of access to abutting property regardless of the term, such as *lane* or *way*, used to describe it and:

(1) *arterial street* means an intermediate street carrying more traffic and for greater distances than a collector street but less than a major arterial street. It may carry traffic to an expressway or major arterial street.

(2) *collector street* means a street which functions to conduct traffic between major arterial streets and/or activity centers. It is a principal traffic artery within residential areas and carries relatively high volumes of traffic wth a usual average daily traffic range of one thousand to three thousand vehicles.

(3) *cul-de-sac* means a local street intersecting with another street at one end and terminating at the other end in a vehicular turnaround. These streets are limited to one thousand feet in length; however, the Planning Commission may approve a cul-de-sac of greater lengths where, due to topographical conditions, design considerations or the number of lots to be located on the street, a greater length may be deemed necessary.

(4) *expressway* means a street or highway which is devoted entirely to the task of traffic movement, serves little or no land-service function, is characterized by at least some degree of access control, provides for large volumes of traffic at relatively high speed and is primarily intended to serve long trips.

(5) *local street* means a street designed and maintained to provide access to abutting property. A local street is of limited continuity and not for through traffic.

(6) *major arterial street* means a street used primarily for traffic traveling considerable distances within or through an area not served by an expressway. A major arterial is of considerable continuity and is used primarily as a main traffic artery. A major arterial may also be a limited access street.

(7) *marginal access street* means a street which is parallel and adjacent to an expressway, arterial street or limited access street or in the immediate vicinity of these streets and which has the principal purpose of relieving these streets from local service of abutting property by providing protection from conflicts with through traffic. A marginal access street may also be called a *frontage street.*

(8) *private street* means a street designed to serve more than one property which is privately owned and maintained on a recorded easement and which has been approved by the Director under the provisions of s. 654.110(k) or Chapter 730.

(9) *public street* means a street designed to serve more than one property owner which is dedicated to the public and is accepted for ownership and maintenance by the City.

(dd) *subdivision* includes all divisions or resubdivisions of a tract or parcel of land into three or more lots, building sites or other divisions for the purpose, whether immediate or future, of sale or building development according to a plat of record and includes all divisions of land involving the dedication of a new street or a change in existing streets; provided, that the following shall not be included with in this definition nor be subject to the provisions of this chapter:

(1) the combination or recombination of portions of previously platted lots where the total number of lots is not increased and the resultant lots comply with the standards of this chapter and the Zoning Code.

(2) the division of land into parcels greater than five acres where no street right-of-way dedication is involved.

(3) the public acquisition by purchase, acceptance of deed of dedication or exercise of the right of eminent domain of strips of land for the widening or opening of streets.

(4) the division of a tract in single ownership, whose entire area is not greater than two acres, into not more than three lots, where no street right-of-way dedication is involved and where the resultant lots are equal to or exceed the standards of this chapter and the Zoning Code.

(ee) *surveyor* means a land surveyor registered in Florida.

(ff) *used* or *occupied* includes the words *intended, designed* or *arranged to be used or occupied.*

(gg) *walkway* means a right-of-way intended primarily for pedestrians, excluding self-propelled vehicles.

(hh) *work* includes required construction shown on approved plans and specifications for all facilities and features of any kind.

History.—Ord. 68-57-112, s. 5; Ord. 70-650-536; Ord. s. 71-397-181; Ord. 78-178-270, s. 1; Ord. 81-800-388, s. 1; Ord. 83-591-400, s. 1.
Note.—Former s. 712.105.

654.106 Preparation of plats. Plats are to be prepared by a surveyor and plans for required public improvements shall be prepared by an engineer. The developer shall present a letter to the Planning Commission naming the surveyor and engineer whom he has employed to prepare the plat and the plans for required improvements.

History.—Ord. 68-57-112, s. 6; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.—Former s. 712.106.

654.107 Pre-application procedure.

(a) The purpose of the "pre-application" is to allow the developer and planning staff the opportunity to consult informally prior to the preparation of the preliminary plat and formal application and to secure Planning Commission approval of the proposed subdivision as contemplated by the sketch plan. It is intended that this procedure will assist the developer in preparing a plat which will meet the requirements of these regulations.

(b) Prior to the filing of an application for conditional approval of the preliminary plat, the developer shall submit the following to the Planning Commission for study and informational discussion purposes:

(1) Twelve copies or such other number as required by the planning staff of a written statement generally describing the conditions of the site and the proposed development of the entire subdivision. This statement shall include data on existing covenants, soil characteristics and information describing the subdivision proposal such as the number of residential lots, typical lot width and depth, public areas and other information the developer may consider pertinent.

(2) Twelve copies or such other number as required by the planning staff of a sketch plan including the name and location of the proposed subdivision; name, telephone number and address of the developer; the date and

North point; the street, lot and block layout; a layout of adjoining streets and platted lots; the location of existing improvements which should be considered; and topographic contour lines at two-foot intervals where the ground slope is less than three percent and five-foot contour interval where the ground slope is greater than three percent unless a greater interval is sufficient to define requirements and other considerations. Elevations shall be based on the National Ocean Survey datum plane and the plan shall be drawn to a scale of not more than one inch equals one hundred feet.

(3) If the developer proposes to construct the subdivision in stages, the nature and extent of the stages shall be clearly delineated at this time and the written statement and sketch required by paragraphs (1) and (2) shall cover all proposed stages.

(c) This section does not require an application fee for filing with the Planning Commission. Upon receipt of a sketch plan, the planning staff shall hold a pre-application conference within fifteen working days with the developer to review the proposed subdivision and shall forward copies of the material received to State and local agencies which might be concerned, including the Public Works Department, the Duval County School Board, the Jacksonville Electric Authority, the Jacksonville Transportation Authority, Southern Bell Telephone and Telegraph Company, the State Department of Transportation, where applicable, and the Recreation and Public Affairs Department.

(d) The planning staff shall, within ten working days after the pre-application conference, submit its recommendation to the Planning Commission for its approval at its regularly scheduled meeting, following which the developer may then proceed as provided in this chapter for preliminary plat approval.

History.--Ord. 68-57-112, s. 7; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.107.

654.108 Procedure for approval of final construction plans for required improvements; conditional approval of preliminary plat.

(a) *Preparation of plans.* Plans for required public improvements shall be prepared by an engineer.

(b) *Preliminary plat.* Upon approval o the sketch plan as outlined in s. 654.107, th developer will prepare a preliminary plat at scale of not more than one hundred feet to th inch together with improvement and construc tion plans and other supplementary material a follows:

(1) proposed subdivision nam identifying title, which shall not duplicate o closely approximate the name of another sub division in the City.

(2) key map showing location c the tract in reference to other areas of the City.

(3) North arrow, graphic scale scale and date and basis of bearing (desired gri bearing).

(4) name, address and telephon number of the owner of the property or his au thorized agent.

(5) name of the surveyor and en gineer responsible for the plan and supportin data.

(6) location, names and pla book and page reference of adjacent subdi visions, if any, and the names of record owners c adjoining unplatted land, as recorded in th Office of the Property Appraiser.

(7) tract boundaries, with bea ings and distances.

(8) existing streets and alleys o or adjacent to the tract, including the nam right-of-way width and street or pavemer width. Existing streets shall be dimensioned t the tract boundaries.

(9) existing property lines, eas ments and rights-of-way and the purpose fc which the easements or rights-of-way have bee established.

(10) location, names where appl cable and width of proposed streets, alley rights-of-way and easements and the purpose the easements; proposed lot lines with approx mate dimensions; lot numbers and block num bers; and minimum building setback line.

(11) sites, if any, to be dedicate or reserved for public uses.

(c) *Construction plans for required in provements.* Two complete sets of engineerir plans for streets, sidewalks, curbs and gutter water systems, sanitary sewer systems, stor drainage systems and other required publ improvements shall be submitted to the pla ning staff, who shall process them through t Department for review and approval. If t

engineering plans meet applicable standards required by the Department, three additional copies of the plans shall be submitted. If the engineering plans do not meet applicable standards required by the Department, the plans shall be revised and five complete sets of the revised plans shall be submitted including:

(1) ground elevations and contour intervals on the tract based on the National Ocean Survey datum plane at minimum contour intervals sufficient to show disposition of surface drainage.

(2) subsurface conditions on the tract; location and results of tests made to ascertain subsurface soil and groundwater conditions; and the depth to groundwater unless test pits are dry at a depth of three feet.

(3) title and certificates; present tract designation according to the public records of Duval County; the names and addresses of the owners, including certification from the developer's attorney or an abstract company that the dedicator of the plat is the owner of record of the property or, if the dedicator is not the owner, a certification that the owner of record of the property has consented to the submission of the preliminary plat and that the dedicator has the contractual right to purchase the property from the owner; a statement from the owner or dedicator that there are no mortgages on the property, if there are none, or, if there is a mortgage, a letter of acknowledgement from the mortgagee stating that he approves of the proposed platting; and a certificate from the developer's attorney, abstract company or the Tax Collector that taxes due and payable at or prior to the time the application for conditional approval or acceptance is filed have been paid.

(d) *Application to Planning Commission.* Six copies of the preliminary plat and supplementary material specified above shall be submitted to the Planning Commission with a written application for approval. The planning staff shall forward copies to the Director and other required agencies.

(e) *Public Works Department report.* The Director shall report to the planning staff in writing within ten working days the recommendations, findings or reports of the appropriate City departments to which he refers the preliminary plat and supplementary material required by these regulations.

(f) *Examination of plat materials required.* The Director or other appropriate City or State department to which the planning staff refers the preliminary plat and required supplementary material shall each check the preliminary plat and supplementary material required by these regulations.

(g) *Planning staff approval.* The planning staff shall approve or disapprove the preliminary plat within fifteen working days after receipt thereof pursuant to subsection (d).

(h) *Conditional approval.* The planning staff may conditionally accept the preliminary plat and required improvement and construction plans and other supplementary materials as presented or with minor modifications, if they are found to be in compliance with these regulations, or may refuse to accept the preliminary plat and required improvement and construction plans when they are found not to be in compliance with or readily capable of being revised to comply with these regulations. A full statement of the developer's responsibilities shall be worked out at this time, if conditional approval is given.

(i) *Decision recorded; forwarded to Council.* The action of the planning staff shall be noted on six copies of the preliminary plat and the recommendations, together with a copy of the preliminary plat, shall be forwarded to the Council.

(j) *Copy distribution.* Two copies of the preliminary plat shall be returned to the developer, one copy shall be retained in the office of the Planning Commission, and one copy each shall be distributed to the Director and to the Office of General Counsel.

(k) *Meaning of Planning Commission approval.* Planning Commission approval of the preliminary plat and other required supplementary material shall constitute acceptance of the final plat subject to the requirements of the ordinance. Conditional approval of the preliminary plat and required supplementary material shall be valid for twenty-four months from the date the Planning Commission gives the approval. If the final plat is not submitted to and approved by the Council during the twenty-four-month period, the conditional approvals shall be null and void unless the Director grants an extension upon application by the developer.

(l) *Council approval.* The preliminary plat and required supplementary material and acceptance ordinance shall be submitted by the

Office of General Counsel to the Council Secretary for introduction to the Council within ten days after transmission by the planning staff for approval by the Council and for recording of the final plat upon fulfillment of the requirements of these regulations. The preliminary plat and required supplemental material may be submitted to the Council in place of the final plat and it shall be deemed adequate for the first two readings by the Council. Before the third reading by the Council, the final plat must be substituted for the preliminary plat. It is the intent of this subsection to require the planning staff to submit the approved preliminary plat and required supplementary material to the Office of General Counsel for review, approval and preparation of an ordinance accepting the plat and require the Office of General Counsel to forward the acceptance ordinance to the Council for action. Upon Council approval, the ordinance and the final plat and supplementary material will be sent to and will remain in escrow at the office of the Corporation Secretary until the developer has fulfilled the requirements of these regulations. Upon completion and acceptance by the Director of construction of the required improvements or the posting of proper bonding and submission of the approved final plat, the developer shall pay the filing fee and the Corporation Secretary shall record the plat.

History.—Ord. 68-57-112, s. 8; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.—Former s. 712.108.

654.109 Procedure for approval of final plat.

(a) *Preparation of final plat.* Upon approval of the preliminary plat as outlined in s. 654.108, the final plat is to be prepared by a surveyor and is to be clearly and legibly drawn in black india ink on tracing cloth or approved equal as required for filing for record in the City and in accordance with the design standards and provisions of Chapter 177, Florida Statutes, as amended from time to time. The original and nine paper prints of the final plat and supplementary material shall be submitted to the Director who shall distribute copies thereof to the planning staff and other interested agencies, utilities and departments. Where necessary, the plat may be on several sheets and each sheet shall contain an index delineating that portion of the subdivision shown on that sheet in relation to the entire subdivision. For large subdivisions, the final plat may be submitted for approval or acceptance progressively in contiguous sections satisfactory to the Council. The final plat shall be at a scale of not more than one hundred feet to the inch on a sheet eighteen inches by twenty-six inches and shall include the following features:

(1) Subdivision name or identifying title and the name of the record owner.

(2) primary control points approved by the Director or description and ties to the control points, to which all dimensions angles, bearings and similar data on the plat shall be referred.

(3) North point, scale, graphic scale and date; and the basis of bearing (desired grid bearing).

(4) tract boundary lines, right of-way lines of streets and easements and other rights-of-way and property lines of residential dimensions, bearings or angles, and radii, arcs and central angles of all curves. Distances are to be accurate to hundredths of a foot and angles to the nearest ten seconds except where this is not feasible due to topographical boundaries.

(5) location of the subdivision with respect to section lines or a tie to a point of record if section lines are not readily available.

(6) location of all pertinent reference monuments.

(7) the exact names, location and width along the property lines of existing or recorded streets intersecting or paralleling the boundaries of the tract.

(8) the exact layout, including: street and alley lines and rights-of-way; street bearings and widths (including widths along the lines of obliquely intersecting street); lengths of arcs, radii and points of curvature or chord lengths and bearings; points of tangency or non tangency intersects; easements owned by or rights-of-way provided for public utilities; and lot lines with dimensions in feet and hundredths, if feasible, and with bearings or angles. Street names shall conform to the City system.

(9) lots numbered in accordance with s. 177.091(18), Florida Statutes.

(10) the accurate outline of property which is to be dedicated, reserved or proposed for public use, including easements, and property that may be reserved by convenants or deeds for the common use of the property owner

in the subdivision, with the purposes indicated thereon.

(11) a reference to recorded subdivision plats of adjoining platted land by record book and page number and plat name, the adjacent portions of which may be shown in outline form.

(12) a complete legal description of the land to be subdivided. The legal description shall be approved by the Office of General Counsel.

(13) a certification by the surveyor attesting to the accuracy of the survey and the legal description and that the permanent reference monuments have been established according to law and these regulations.

(14) space and form for appropriate certifications and acknowledgement from the following:

(i) the Mayor.

(ii) the Council Secretary.

(iii) the Clerk of the Circuit Court.

(15) unless this requirement is waived by the Planning Commission, on the face of the plat an unreserved dedication to the public of streets, highways, alleys, parks, parkways, easements, commons or other public places included within the plat. The dedication shall be subscribed to by the legal and equitable owners of the lands and shall be signed and acknowledged and the signatures attested to by two witnesses.

(b) *Title certification and real estate taxes.* There shall be on the final plat a certification by a title opinion of an attorney-at-law licensed in Florida or a certification by an abstractor or a title company showing that apparent record title to the land as described and shown on the plat is in the name of the person executing the dedication, if any, as it is shown on the plat and, if the plat does not contain a dedication, that the developer has apparent record title to the land. The title opinion or certification shall also show mortgages not satisfied or released of record in accordance with s. 177.041, Florida Statutes and a certificate from the developer's attorney, abstract company or the Tax Collector that taxes due and payable at or prior to the time the application for final approval or acceptance is filed have been paid.

(c) *Ownership of improvements.* Upon approval and recordation of the final plat and after the construction of required improvements has been inspected and approved by the City, ownership of the improvements shall vest in the City, except that:

(1) the title to the street lighting standards shall vest in the appropriate electric utility serving the area.

(2) the title to water and/or sewerage system improvements located within the territory covered by a certificate of public convenience and necessity issued by the State Public Service Commission shall vest in the holder of the certificate.

(3) the title to water and/or sewerage system improvements in areas not covered by certificates of public convenience and necessity shall vest in the City where the continuing services are to be provided by the City, except where the interest in titles has been expressly denied by the City.

(d) *Application.* Application for recording of the final plat accompanied by a reaffirmed certification by the developer's attorney or abstract company or Tax Collector and statements by the owner or dedicator shall be submitted in writing to the Director. Within five working days after receipt of the application with accompanying reaffirmed certifications, statements and letters and the required cash deposits, personal bonds with letters of credit or surety bonds, the Director shall report in writing his findings to the developer and to the Corporation Secretary for the Mayor's signature and recording.

(e) *Certification.* The final plat shall be certified by the developer and countersigned by the Director that the developer has complied with one of the enumerated alternatives. If alternative (2), (3) or (4) is used, it will include the cost of placing iron pipes and pins, as required in this chapter, together with the survey costs incident to their proper placement. A developer may extend, renew or substitute collateral described in paragraphs (2)–(4) one or more times; provided, that no extension or renewal thereof or substitute therefor shall have a maturity or expiration date later than the time for completion of the improvements. The time for completion of the improvements shall be a time specified in the ordinance approving the plat or a later time as may be approved by the Director; provided, that, if the collateral securing the completion of improvements has a maturity or

expiration date shorter than the time for completion, the time for completion shall be deemed to expire upon failure of the developer to extend, renew or provide substitute collateral for the collateral at least ten days before the maturity or expiration date, unless a later time is approved by the Director.

(1) In the event the developer exercises the right to construct and complete required improvements prior to approval of the final plat, the City shall automatically become vested with the right to enter upon the property to be platted for purposes of inspecting the construction of improvements during the progress of the construction. The developer's engineer shall, upon completion of the entire work on one or more units of the subdivision, furnish the Director with a written certificate of the completion accompanied by the records and data as herein prescribed. If the Director finds that the completion of the required improvements complies with these regulations, the final plat shall be approved.

(2) The developer shall deposit with the City or place in an account subject to the control of the City cash in the full amount of the total sum of engineering and construction costs for the installation and completion of the required improvements. The developer shall be entitled to secure draws from the deposits or account as installation progresses at stages of construction established by the Director but not more frequently than monthly. A draw from the cash deposit or account shall be made only within thirty days after the developer's engineer has certified to the City that the cost of improvements installed equals or exceeds the amount of the draw requested plus previous draws made and the Director has inspected the improvements and authorized the draw. The Director shall have the right to reduce the amount of a requested draw to an amount he feels is justified based upon his inspection of the improvements and shall also have the right to refuse to approve a requested draw so long as the developer fails to be in compliance with any of the terms and conditions of the plat or plans and specifications for the improvements. The developer shall be entitled to receive interest earned on the deposit or account. The City, after sixty days' written notice to the developer, shall have the right to use the cash deposit or account for the completion of the improvements in the event of default by the developer or failure of the developer to complete the improvements within the time required by the ordinance approving the final plat after extensions granted by the Director.

(3) The developer shall furnish to the City his personal bond secured by an unconditional and irrevocable letter of credit in an amount equal to the total of engineering and construction costs for the installation and completion of the required improvements, which letter of credit shall be issued by a State or national banking institution to the City. The letter of credit shall be in the form approved by the Office of General Counsel. During the process of construction, the Director may reduce the dollar amount of the personal bond and letter of credit on the basis of work completed. The City after sixty days' written notice to the developer shall have the right to use a funds resulting from drafts on the letter of credit for the completion of the improvements in the event of default by the developer or failure of the developer to complete the improvements within the time required by the ordinance approving the final plat or extensions granted by the Director.

(4) The developer shall furnish to the City a surety bond in the form and by a surety approved by the Office of General Counsel guaranteeing that, within the time required by the ordinance approving the final plat, the required work will be completed in full accordance with the final plat and all conditions attached thereto, copies of which shall be attached to and constitute a part of the bond agreement. The bond shall be in an amount equal to one hundred percent of the sum of engineering and construction costs. During the process of construction, the Director may reduce the dollar amount of the bond on the basis of work completed. The City, after sixty days' written notice to the developer, shall have the right to bring action or suit on the surety bond for the completion of the improvements in the event of default by the developer or failure of the developer to complete the improvements within the time required by the ordinance approving the final plat or extensions by the Director.

History.—Ord. 68-57-112, s. 9; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.—Former s. 712.109.

654.110 Design standards: streets.
(a) The character, width, grade and

location of streets shall conform to the standards in this chapter and shall be considered in their relation to existing and planned streets, to topographical conditions and to public convenience and safety and in their appropriate relation to the proposed uses of the land to be served by the streets.

(b) The arrangement of streets in a subdivision shall either:

(1) provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or

(2) conform to a plan for the neighborhood approved or adopted by the Planning Commission to meet a particular situation where topographical or other conditions make continuance to existing street impracticable.

(c) Local streets shall be so laid out that their use by through traffic will be discouraged.

(d) Where a subdivision abuts on or contains an existing or proposed arterial street or expressway, the Planning Commission may require marginal access streets, reverse frontage with screen planting or fencing contained in a non-access reservation along the rear property line, deep lots with rear service alleys or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

(e) Where a subdivision borders on or contains a railroad right-of-way or limited access highway right-of-way, the Planning Commission may require an access street approximately parallel to and on each side of the right-of-way, at a distance suitable for the appropriate use of the intervening land, as for park purposes in appropriate districts. Distances involving rights-of-way shall also be determined with due regard for the requirements of approach grades and future grade separations.

(f) Reserve strips controlling access to streets shall be prohibited except where their control is placed in the City.

(g) Street jogs with center-line offsets of less than one hundred fifty feet shall be avoided, except where topographical conditions make this provision impractical.

(h) When connecting streets deflect from each other at any one point by more than ten degrees, they shall be connected by a curve with a radius adequate to ensure a horizontal sight distance in accordance with *City Standard Specifications*.

(i) Streets shall be laid out so as to intersect as nearly as possible at right angles and no street shall intersect another street at less than a sixty-degree angle.

(j) Property lines at street intersections shall be rounded with a radius of twenty-five feet or of a greater radius where required by the Department and approved by the Planning Commission. The Planning Commission may permit comparable cutoffs or chords in place or rounded corners.

(k) Upon the specific approval of the Planning Commission, areas shown on plats for streets, highways and alleys shall not be required to be dedicated to the public if the developer, on the plat, grants to owners of lots shown on the plat and to delivery, pickup and fire protection services, police and other authorities of the law, United States mail carriers, representative of utilities authorized to serve the lands shown on the plat and holders of mortgage liens on the lands a non-exclusive and perpetual right of ingress and egress over and across the undedicated areas. In addition, the Planning Commission may waive other requirements herein that parks, parkways, easements, commons or other places included within the plat be dedicated to the public.

(l) Street minimum right-of-way and paving widths shall be as indicated in Table 654–1, unless otherwise indicated or required by law:

Table 654–1

Street Type	*Right-of-Way (in feet)*	*Paving Width (in feet)*
Collector (median optional)	80	34
Marginal access	60	24
Local:		
Without curb and gutter	60	20
With curb and gutter	50	24
Cul-de-sacs and loop streets not exceeding 1,500 feet in length:		
Without curb and gutter	60	20
With curb and gutter	50	20
Alley:		
Commercial	30	12
Residential	2[illegible]	10

The developer shall not be required to pave or dedicate an expressway, major arterial street or arterial street. Additional right-of-way and/or pavement width may be required on existing streets by the Department and approved

by the Planning Commission, based on approved standards, to promote public safety and convenience or to ensure adequate access, circulation and parking in high-density residential, commercial or industrial areas but no additional right-of-way or paving shall be required from a developer in connection with existing streets or highways which meet the standards in Table 654–1. Where a subdivision abuts or contains an existing street of inadequate right-of-way width, additional right-of-way in conformity with the standards in Table 654–1 shall be required for new sudivisions.

(m) Dead-end streets, designed to be so permanently, shall be prohibited except when designed as cul-de-sacs. The streets are limited to one thousand feet in length; however, the Plannning Board may approve cul-de-sacs of greater lengths where, due to topographical conditions, design consideration or the number of lots to be located on the street, a greater length is deemed necessary. They shall be provided at the closed end with a circular dedicated area with a diameter of not less than ninety feet at the property line and not less than sixty feet at the edge of the pavement. There may be provided in the center of the turnaround an unpaved island, surrounded by a curb, improved with grass and landscaping that will not interfere with sight distance, which has a diameter of not less than twenty feet. The Planning Commission may permit a "Y" or "T" design of proper size for vehicular turnaround. In those cases where dead-end streets are intended to be extended in the later stages of the subdivision as revealed by the pre-application material, temporary turnarounds shall be provided at the present ends of those streets within the right-of-way areas required for those streets.

(n) Street names and house numbers shall conform to the street naming and house numbering plan of the City. New street names shall not duplicate or closely approximate phonetically, in spelling or by use of alternate suffixes such as *lane*, *way*, *drive*, *court*, *avenue* or *street* the names of existing streets, except that a new street that is an extension of or in alignment with an existing street shall bear the same name as that borne by an existing street. The Building and Zoning Inspection Division shall, within ten days of conditional approval of the preliminary plat, assign or cause assignment of house numbers on all lots.

(o) Street grades shall be determined in relation to the drainage installations for the subdivision. Plans for these designs (plans and profile) shall be approved by the Director. The plans shall be designed and drawn in accordance with City standards. Elevations shall be based on the National Ocean Survey datum.

History.–Ord. 68-57-112, s. 10; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.110.

654.111 ——: alleys.

(a) Alleys shall be provided in commercial and industrial districts, except that the Planning Commission may waive the requirement where other definite and assured provision is made for service access such as off-street loading, unloading and parking consistent with and adequate for the uses proposed. The right-of-way width of an alley shall not be less than thirty feet unless otherwise approved by the Director.

(b) Alleys may be provided in residential districts.

(c) Alley intersections and sharp changes in alignment shall be avoided but, where necessary, curves shall be cut off sufficiently to permit safe vehicular movement.

(d) Dead-end alleys are prohibited.

History.–Ord. 68-57-112, s. 11; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.111.

654.112 ——: easements.

(a) Easements across lots or centered on rear or side lot lines shall be provided for utilities where necessary, shall be at least fifteen feet wide and shall extend from a street to a street.

(b) Where a subdivision is traversed by a watercourse, canal, drainageway, nonnavigable channel or stream, there shall be provided a storm-water easement or drainage right-of-way conforming substantially with the lines of the watercourse and such further width or construction or both as will be adequate for the purpose.

(c) Other easements may be required for drainage purposes of such size and location as may be determined by the Director.

(d) Where necessary to safety and convenience, pedestrian and service easements or rights-of-way may be provided.

(e) Bicycle paths and horse-trail easements or rights-of-way may be provided, subject to arrangements satisfactory to the City as to the assumption of maintenance costs.

(f) Easements required by these regulations within proposed subdivisions shall be provided at no expense to the City.

History.–Ord. 68-57-112, s. 12; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.112.

654.113 ——: blocks.

(a) The lengths, widths and shapes of blocks shall be determined with due regard to:

(1) provision of adequate building sites suitable to the special needs of the type of use contemplated.

(2) zoning requirements as to lot sizes and dimensions.

(3) needs for convenient access, circulation, control and safety of street and pedestrian traffic and fire protection.

(4) limitations and opportunities of topography, with special emphasis on drainage of the proposed subdivision and the possible adverse effects of that drainage on properties surrounding the subdivision.

(b) Block lengths shall not exceed one thousand, five hundred feet between intersecting streets, except that the Planning Commission may approve blocks of greater length.

(c) On-grade pedestrian crosswalks may be required where deemed essential to provide circulation or access to schools, playgrounds, shopping centers, transportation and other community facilities. Wheelchair ramps shall be provided at intersections or crosswalks as required by State law.

History.–Ord. 68-57-112, s. 13; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.113.

654.114 ——: lots.

(a) The lot size, width, depth, shape and orientation and the minimum building setback lines shall be appropriate for the location of the subdivision and for the type of development and use contemplated. Lot arrangement and design shall be such that all lots will provide satisfactory and desirable building sites.

(b) Lot dimensions shall conform to the requirements of the Zoning Code and:

(1) residential lots proposed with individual wells and/or septic tank disposal fields shall conform to the standards of the Health, Welfare and Bio-Environmental Services Department and the State Department of Health and Rehabilitative Services.

(2) depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.

(c) Corner lots for residential use shall have extra width, greater than a corresponding interior lot, to accommodate the required building setbacks from an orientation to both streets.

(d) The subdivision shall provide each lot with satisfactory and permanent access to a public street.

History.–Ord. 68-57-112, s. 14; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.114.

654.115 Required improvements: monuments.

(a) Iron pipes shall be placed at all block corners, angle points and points of curves in streets and at intermediate points as required by the Director.

(b) A sufficient number of permanent reference monuments shall be set in each subdivision, in no case less than two monuments and in no case more than two thousand feet apart, either within the tract, on the exterior boundaries thereof or both, properly referenced, for both construction and future City use. The permanent reference monuments shall meet the specifications set out in s. 177.091, Florida Statutes and as may be required by the Director.

(c) The location of permanent reference monuments shall be indicated on the final plat. Iron pipes and pins and permanent reference monuments shall be of the size, material and length specified by the Director.

(d) Lot corners shall be monumented with iron pipes, iron pins or permanent reference monuments.

(e) Permanent reference monuments (PRM) and permanent control points (PCP) shall be set in accordance with s. 177.091, Florida Statutes, except that monuments, including lot corners, must be placed before the developer is released from his surety. If no surety bond or personal bond secured by a letter of credit is posted, monuments including lot corners must be placed prior to acceptance for ownership and

maintenance. Land monuments, including lot corners disturbed or destroyed in the prosecution of construction, shall be accurately witnessed and replaced at the developer's expense upon the completion of construction. The Department may accept a certification from the developer's surveyor that the requirements of this section have been satisfied.

History.–Ord. 68-57-112, s. 15; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.115.

654.116 ——: street name signs. The developer shall pay the City for the cost of street name signs and the City shall install street name signs at all intersections.

History.–Ord. 68-57-112, s. 17; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.
Note.–Former s. 712.116.

654.117 ——: storm drainage.

(a) Subdivision improvements shall include comprehensive storm drainage facilities for positive drainage based on the five-year design storm unless the topographical, terrain or other conditions indicate that a lesser period for storm design would meet good engineering design plans as approved by the Department. Storm drainage plans and specifications shall be prepared by an engineer. Storm elements shall meet or exceed current minimum standards established in accordance with s. 654.130 and shall include surface flow over pavements, piped flow of collected runoff and/or intercepted groundwater. Open swales, ditches or other waterways shall require complete engineering design data pertinent to its design and its effect within the particular drainage ridge to establish its adequacy for approval by the Director.

(b) Drainage outfalls shall be designed and constructed to provide positive flow in pipe, except that ditches or natural drains may be used as follows:

(1) in flat terrain with high groundwater, these ditches may be required to be concrete lined.

(2) significant natural drains may be used.

(3) other exceptions may be requested, in writing, with justification and approval by the Director for engineering considerations.

History.–Ord. 68-57-112, s. 18; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.117.

654.118 ——: clearing and grading of rights-of-way. The developer shall be required to clear rights-of-way and to make grades, including grades for streets, alleys and drainage, consistent to grades of the approved construction plans. Debris shall be removed from rights-of-way. In the interest of the preservation of existing trees and other natural beauty, the Department may vary from these regulations where aesthetic and environmental conditions will be enhanced.

History.–Ord. 68-57-112, s. 19; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.118.

654.119 ——: bridges and culverts.

(a) Culverts and bridges shall meet the standards specified by the Director. Culverts shall be of a size to provide adequate drainage opening and of sufficient length to extend beyond the shoulder lines of the road.

(b) Locations of bridges and culverts with construction data and full specifications shall be shown in an exhibit and approval or acceptance of the final plat shall not be accomplished unless the exhibit is approved by the Department.

History.–Ord. 68-57-112, s. 20; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.119.

654.120 ——: sewer and water.

(a) Public water and sanitary sewer systems shall be provided in each new subdivision: however, the Department may find that conditions are such that all or some of these installations may not be necessary. Plans for use of private septic tanks, private sewerage systems or private water systems must, in these circumstances, be approved by requisite State and City authorities before approval of the preliminary plat. Private septic tanks or private sewerage systems and private water systems shall be so installed as to simplify later connection with City systems.

(b) Installation of water and sanitary sewer systems shall be in accordance with the standards required by the Director. Meter boxes for public water service or meter boxes for private water service systems which are placed within City-owned rights-of-way shall be located in accordance with the provisions of s. 612.403(a). When meter boxes are installed in advance of meters, they shall be placed utilizing the dimensions set forth in s. 612.403(a) and

measurement shall be to the meter box lid in the cover.

(c) Costs of installing water facilities (including fire hydrants, meter boxes and meter box tops) and sanitary sewer and storm sewer facilities shall be borne by the developer; provided, that, where the developer is required by the Director to install larger lines or facilities than necessary to serve his development in order to provide for future development, the differences in costs between installing facilities adequate for the subdivision and the oversize lines shall be borne by the City; and provided further, that, at the time as additional subdivisions shall make use of the oversize facilities, the City may assess the cost to the future developers proportionate to their respective use of the facilities.

(d) With respect to fire protection:

(1) the water system shall be sized to provide maximum day domestic requirements at residential pressures not less than thirty pounds per square inch at all points in the system in addition to fire flows of at least five hundred gallons a minute in single-family residential subdivisions and at least fifteen hundred gallons a minute from at leat two hydrants in commercial, industrial, institutional and multiple-family residential areas at a residual pressure of at least twenty pounds per square inch at the hydrant. Water lines serving hydrants in residential subdivisions shall consist of mains at least six inches in diameter arranged so that they form a good gridiron of looped distribution. Single main extensions supplying a looped gridiron or long lengths or dead-end mains serving more than one hydrant shall not be less than eight inches in diameter. Fire hydrants in proposed single-family residential unit developments shall be not more than six hundred feet apart when measured along streets or acceptable accessways, except in a cul-de-sac or dead-end street, where a fire hydrant shall be located not more than six hundred feet from the center of the turnaround. Fire hydrants in commercial, industrial, institutional and multi-family residential developments shall be placed within two hundred fifty feet of each structure and shall be no more than five hundred feet apart. Fire hydrant spacing shall be measured along streets or acceptable accessways.

(2) the responsibility for maintenance of fire hydrants in good working condition shall be that of the water utility serving the water system.

History.–Ord. 68-57-112, s. 21; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.120.

654.121 ——: streets; curbs and gutters; sidewalks.

(a) Streets and public ways shall be cleared and graded, including side slopes, to the specified grade. If required to prevent erosion or excessive washing of the shoulders, protective measures shall be taken by the developer as required by the Director.

(b) Streets shall be paved and standard curb and gutter installed to meet the specifications of the Department. Roll curbs may be permitted on local streets. The Director may waive the curb and gutter requirements.

(c) Sidewalks shall be required on both sides of all arterial, collector and local streets in areas zoned for lots of less than one-quarter of an acre and on at least one side of local streets in areas zoned for lots of one-quarter-acre or more, subject to a sidewalk plan approved by the Planning Commission, except that no sidewalks are required on minor cul-de-sacs of four hundred feet or less and on loop streets of eight hundred feet or less. The Planning Commission may require sidewalks only on one side of the street or waive the requirement for sidewalks altogether based on its consideration of alternate pedestrian methods, environmental concerns, design considerations, traffic volumes or unique features of the site. Sidewalks shall be a minimum of four feet wide and shall be constructed to the specifications of the Department.

History.–Ord. 68-57-112, s. 22; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 78-274-105, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.121.

654.122 Utility lines. Utility lines of all kinds, including those of franchised utilities, electric power and light, telephone and telegraph, cable television, water, sewer and gas shall be constructed and installed beneath the surface of the ground unless it is determined by the Department that soil, topographical or another compelling condition makes the underground installation of the utility lines as prescribed herein unreasonable or impracticable. The underground installation of incidental appurtenances such as transformer boxes, pedes-

tal-mounted terminal boxes, meter boxes for electricity or similar service hardware necessary for the provision of electric and communication utilities shall not be required. Below-ground-level installation shall not be required of the electric and communication major feeder lines which serve more than one residential subdivision. The placement, installation and maintenance of utility lines shall be in conformance with the respective utility company's construction procedures as approved by the Department. The developer shall make the necessary cost and other arrangements, including easements, for the underground installation with each of the persons furnishing the utility services involved. In subdivisions of less than twelve lots or where the density of development is less than one dwelling an acre, the Department may waive the requirement for underground installation if the service to an adjacent area is overhead and no further development of the proposed subdivision is contemplated. This section shall not apply to resubdivisions of areas then developed, if the resubdivision will not require material and substantial changes in utility lines or accessory installation.

History.–Ord. 68-57-112, s. 23; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.122.

654.123 Street lighting. The developer shall provide street lighting standards in the subdivision in accordance with the specifications set forth by the electric utility serving the area and the Department. The complete street lighting system shall be maintained by the electric utility serving the area.

History.–Ord. 68-57-112, s. 24; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.123.

654.124 Director to enforce and administer.

(a) For the purpose of generally enforcing and administering this chapter, the Director shall be deemed the administrative officer of the City.

(b) The Director or his duly authorized representative shall make the necessary inspections before, during and after the construction of the work so that the Planning Commission and the Council may be currently informed of the status of the development and so that the Director may generally assist agencies and persons involved in the work to maintain the standards set by these regulations.

(c) Upon completion of the work, where the work has proceeded under surety bond, cash deposit or personal bond secured by a letter of credit, the developer's engineer shall submit to the Director a certificate stating that the work has been entirely completed and that it substantially conforms in all respects to the final plat and plans for required improvements and to the specifications set by these regulations. On completion of the work, the developer will furnish for approval as-built drawings of the improvements to the Director.

(d) Upon receipt of this certificate of completion, the Department shall make a final inspection of the completed construction on the site. In the event that the improvements are incomplete or do not conform to the requirements of these regulations and the plans and specifications, the Director shall notify the developer and the developer's engineer so that corrective measures may be instituted within the life of the construction contract and within the tenure of the contractor's performance bond.

(e) Upon completion of all of the elements of the work in accordance with these regulations and the plans and specifications, the Director shall issue a certification that the work has been acceptably completed and furnish copies of the certification to the developer, the developer's engineer, the Council and the Planning Commission. Upon issuance of the certificate, the surety bond, personal bond with letter of credit or cash deposit of the developer shall be released, if as-built construction plans have been delivered to and approved by the Director.

History.–Ord. 68-57-112, s. 26; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.124.

654.125 Deviations.

(a) Where the Planning Commission finds that compliance with the regulations set forth in this chapter would cause unusual or extraordinary difficulties because of exceptional and unique conditions of topography, access, location, shape, size, drainage or other physical features of the site, it may grant a deviation from this chapter so that substantial justice may be done and the public interest secured; provided, that the public interest is protected and the development is in keeping with the general spirit and intent of these regulations. The

deviation may be granted upon written request of the developer setting forth the reasons for each deviation and upon approval thereof by a majority vote of the Planning Commission and subject to the conditions as the Planning Commission may impose. No deviation may be granted if it would have the effect of nullifying the intent and purpose of these regulations.

(b) The standards and requirements of this chapter may be modified by the Planning Commission in the case of a plan and program for a new town, a complete community or a neighborhood unit, which, in the judgment of the Planning Commission, provide adequate public spaces and improvements for the traffic and pedestrian circulations, recreation, light, air and service needs of the tract when fully developed and populated and which will provide the covenants or other legal provisions as will ensure that the development will not constitute an economic and tax burden on the City.

History.--Ord. 68-57-112, s. 27; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.125.

654.126 Fee. At the time of filing a final plat, the developer shall pay to the City a fee of one hundred dollars plus two dollars for each lot.

History.--Ord. 68-57-112, s. 28; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.126.

654.127 Enforcement.

(a) No plat or plan of a subdivision of land shall be recorded by the Clerk of the Circuit Court until the plat has received final approval in accordance with this chapter.

(b) No person or his agent owning land within a proposed subdivision shall transfer or sell or agree to sell a lot or parcel of land located within a subdivision by reference to, by exhibition or by any other use of a plat of the subdivision before the plat has been approved by ordinance and has been recorded, unless exempted by this chapter. Notwithstanding the provisions of this subsection, nothing in this chapter shall prohibit a developer from agreeing to sell land located within a proposed subdivision to a builder or codeveloper who desires to develop and build upon the land for resale purposes. The developer shall be permitted to refer to, exhibit or otherwise use a plat of the proposed subdivision in connection with an agreement to sell before the plat has been approved by ordinance and recorded; provided, that no document shall be recorded in the public records of Duval County, Florida referring to or attaching a copy of a plat of a subdivision before the plat has been approved by ordinance and recorded, unless the plat is exempted from this chapter by other provisions hereof.

(c) No street number and no building permit shall be issued for the erection of a building in the City on a lot, tract or parcel of land which violates the provisions of this chapter.

History.--Ord. 68-57-112, s. 27; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.127.

654.128 Penalties.

(a) Violation of the provisions of this chapter or failure to comply with any of its requirements, including violations of conditions and safeguards established in connection with grants or deviations, shall constitute a class C offense and, in addition, the offender shall pay all costs and expenses involved in the case. Each day the violation continues or recurs shall be considered a separate offense.

(b) Nothing contained in this section shall prevent the City from taking other lawful action, including resort to equitable action, as is necessary to prevent or remedy a violation.

History.--Ord. 68-57-112, s. 30; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.128.

654.129 Amendments. No amendment to this chapter shall be made by the Council until it has obtained a recommendation from the Planning Commission on the amendment. The Council shall not adopt the ordinance until a public hearing has been held before the Council on the matter.

History.--Ord. 68-57-112, s. 31; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.--Former s. 712.129.

654.130 Subdivision Standards and Policy Advisory Committee.

(a) The Subdivision Standards and Policy Advisory Committee (hereinafter referred to as *the Committee*) is hereby created to review and revise standards and policy to implement the objectives of this chapter and advise the appropriate Council committee of its decisions. The Committee shall be composed of eight members. Four members shall be appointed by the Mayor, subject to confirmation by the Council. These members shall be composed of a rep-

resentative of the home-building industry, a representative of the engineering profession, a representative of the land developers and a representative of private utilities. The remaining four members shall be as follows: the City Highway Engineer; the Manager of Water Services; the Director of Planning; and the City Engineer. Each appointed member shall serve for a term of four years or until his successor shall have been appointed and confirmed; however, of the initial appointments, two of the members shall have terms of two years and the remaining members shall have terms of four years. Vacancies of appointed members occurring on the Committee shall be filled for the unexpired term by appointment by the Mayor, subject to confirmation by the Council.

(b) the Committee shall be organized as follows:

(1) The City Engineer shall be the chairman of the Committee. The chairman shall preside at all meetings of the Committee and cause records and the minutes of the Committee to be kept.

(2) The Committee shall meet on call by the chairman or, at the discretion of the chairman, in consideration of the request of a member. A quorum shall consist of a majority of the members.

(3) The Committee shall adopt, amend and rescind rules for the conduct of its business and to implement the provisions of this section.

(c) *City Standard Specifications*, *City Standard Details* and *Land Development Procedures*, currently in the custody of the Director, are hereby adopted as the official documents containing the present and existing standards and policies used in the City and administered by the Director in accordance with s. 654.124 for the implementation of this chapter. The standards and policies shall remain in effect unless revised pursuant to subsection (e).

(d) The Committee is established for the following purposes:

(1) to review and revise from time to time the basic documents setting forth the rules, standards and policies presently used in the City.

(2) to provide a forum to hear requested revisions to the above-referenced documents in order to keep the documents in a current status.

(3) to vote approval or disapproval of the requested revisions.

(4) to advise the appropriate Council committee of approved revisions.

(e) In implementing its purposes under this section, the Committee shall have the following duties and use the following procedures:

(1) review and approve or revise by Committee vote the documents titled *City Standard Specifications*, *City Standard Details* and *Land Development Procedures* within one hundred twenty days of July 11, 1978 and the chairman shall immediately advise in writing the appropriate Council committee of the approval or revision of the documents and provide copies to each Committee member. The approval documents shall continue in effect but the documents revising the existing documents shall not become effective until ninety days after the chairman has advised the appropriate Council committee of the revision.

(2) entertain requested revisions to the documents by Committee members. A member may request revisions as a representative of his entity or on behalf of the general public.

(3) hear requested revisions at the appropriate meetings and at the direction of the chairman and to vote for approval or denial of the requested revision.

(4) advise the appropriate Council committee, through the chairman, of the vote on the requested revision in writing and provide copies to each Committee member. The approval of a requested revision will not become effective until ninety days after the chairman has advised the appropriate Council committee.

History.–Ord. 78-178-270, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 712.130.

Constitutional and Statutory Provisions

F.S.A.:
§163.260 Regulation of subdivisions; purposes.
§163.265 Subdivision regulations; approval of subdivision plans by commission.
§163.270 Subdivision regulations; adoption and amendment.
§163.275 Subdivision regulations; penalties for transferring lots in unrecorded subdivisions.
§163.280 Subdivision regulations; reversion of subdivided land to acreage.
§163.285 Subdivision regulations, erection of buildings adjacent to unapproved streets.
§163.290 Subdivision regulations; delegation of authority to other governmental agencies.
§163.295 Building, plumbing, electrical, gas, fire, safety and sanitary codes.
§§177.01–177.151 Platting, generally
§177.021 Legal status of recorded plats.

§177.071 Approval of plat by governing bodies.
§177.091 Plats made for recording.
§177.101 Vacation and annulment of plats subdividing land.
§177.131 Recordation of Department of Transportation official right-of-way maps and other governmental right-of-way maps.
§§472.001–472.039 Land surveyors, generally
§§498.001–498.063 Florida Uniform Land Sales Practices Law

Charter Provisions

Art. 21. Area planning and land use regulation

Administrative Law Provisions

Fla. Admin. Code:
Ch. 27F-2 Developments presumed to be of regional impact

Opinions

Fla. Ops. Atty. Gen.:
1956 Op. Atty. Gen. 056-121—Where subdivider has not recorded plat but has conveyed lots, attaching copy of plat to conveyance and making reference in conveyance thereto, assessor may obtain authentic copy of plat and make it part of records of his office and may make assessments by reference to unrecorded plat, as matter of last resort, so that lands will not miss taxation
1957 Op. Atty. Gen. 057-261—County surveyor or county engineer is precluded from establishing section or ¼ section marker where one did not previously exist
1957 Op. Atty. Gen. 057-311—Where existing subdivision is resubdivided and replatted, roads and streets indicated on previous subdivision maps and plats may be abandoned or changed without complying with statute dealing with closing and abandonment of roads, only if plats and maps are clearly within purview of statute dealing with vacation and annullment of plats subdividing land
1964 Op. Atty. Gen. 064-31—Clerk of circuit court may refuse to record map or plat which is not drawn on tracing cloth as required by §177.11, F.S.
1974 Op. Atty. Gen. 074-346—Private roads and open spaces and green areas which are not dedicated to public but are dedicated to and set aside for use of abutting lot owners or property owners of subdiivsion may properly be shown on plat filed with county commission and are entitled to be recorded pursuant to Ch. 177, F.S.
1975 Op. Atty. Gen. 075-77—Authority to vacate subdivision on motion of board of county commissioners exists under §163.280, F.S. in certain circumstances and upon certain conditions, but only if board formally adopts and proceeds in accordance with requirements of Pt. II of Ch. 163
1978 Op. Atty. Gen. 078-118—County is not authorized and cannot in any manner legally convey or transfer ownership and control of vacated roads or streets to homeowners association as such, but upon lawful vacation thereof abutting fee owners hold title in fee simple to vacated roadways or streets to center therof unburdened and unencumbered by public's prior easement to use such roadways or streets for travel
1978 Op. Atty. Gen. 078-125—Municipality possesses no authority under Municipal Home Rule Powers Act to require property owners whose land abuts dedicated public street to prove a reversionary interest" or any other property interest or property right in streedbed prior to and as condition to vacation of such street
D.A.G.:
Op. 183—Closing of existing streets when subdivision is platted
Op. 71-4—Application of Code of Subdivision Regulations (Chapter 712, Ordinance Code) to sale or improvement of lands

Cross References

"Public records of Duval County" defined, see §2.102(t)
Director of Planning, see §30.101
Planning Commission, see §§32.201–32.204
Director of Public Works, see §32.101
Street numbers to be assigned by Building Official, see 9.303(f)
Fair housing regulations, see Ch. 408
Requirements for individual sewage disposal systems, Ch. 470
Adoption of comprehensive plan for City, see §650.101(f)
Applicability of comprehensive plan to Urban Services Districts, see §650.104
Official actions required to conform to comprehensive plan for City, see §650.208
Floodplain regulations, see Ch. 652
Zoning Code, see Ch. 656
Regulations pertaining to private streets and roads, see Ch. 730
Street construction regulations, see Ch. 744
Method of placing subdivision identification signs, see §746.107
Streets and highways system for City, see Ch. 748
Water and Sewer Code, see Ch. 750

Library References

McQuillin:
§1.70. Planning.
§1.73. —Scope.
§1.75. ——Zoning and subdivision control.
§1.80. —New towns.
§25.146a. Dedication as condition precedent to development.
§33.04. Statutory dedications.
§33.05a. Mandatory dedication.
§33.08. Purposes for which dedication is proper.
§33.09. Property which may be dedicated.
§33.22. In general [plats and maps].
§33.23a. Requisites; official approval.
§33.24. Operation and effect of plat.
§33.25. Sufficiency of description.
§33.26. Construction of plats; "park," "common," "square."
§33.28. Vacation of plat.
§33.34. Blanks on plat or map as showing intent to dedicate.
§33.43. Necessity for acceptance.
§33.44. —Statutory dedication.
§33.45. —Sale of lots with reference to plat.
§33.47. Mode and sufficiency of acceptance in general.
§33.52. —Ordinances and resolutions.
§33.58. Acceptance as subject to conditions.
§33.64. Persons to whose benefit dedication inures.
§33.67. Rights acquired by citizens in general.
§33.68. Title acquired by dedication.
§33.73. Rights of purchasers and abutters in general.
§33.74. Uses consistent with dedication; misuser.
§38.80. Effect of abandonment or misuser.

Shepard's:
Subdivisions, §1
Subdivisions, §3
Subdivisions, §4
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Subdivisions, §43
Subdivisions, §45

Annotation

Validity under due process clause of regulations as to subdivision maps or plats or of conditions imposed to approval thereof, 11 ALR2d 532
Construction of regulations as to subdivision maps or plats with respect to question of dedication of portions of lands to public use, 11 ALR2d 546
Designation of public lands on maps or plats vesting title under statute, 11 ALR2d 567

Validity and construction of ordinance requiring land developer to dedicate portion of land for recreational use or make payment in lieu thereof, 43 ALR3d 862

Validity of zoning ordinance defining residential development until establishment of public services in area, 63 ALR3d 1184

Failure of vendor to comply with statute or ordinance requiring approval or recording of plat prior to conveyance of property as rendering sale void or voidable, 77 ALR3d 1058

The Use of Special Assessment Districts and Independent Special Districts as Aids in Financing Private Land Development, 53 Cal. L. R. 364

Control of Land Subdivision by Municipal Planning Boards, 40 Corn. L. R. 258

Uncle Tom's Multi-Cabin Subdivision Constitutional Restrictions on Racial Discrimination by the Developers, 53 Corn. L. R. 314

Land Subdivision Control in Florida, 8 Fla. L. R. 486

Timing and Sequential Control—Essential Basis for Effective Regional Planning, 58 Minn. L. R. 1011

Zoning Program for Phased Growth: Ramapo Township's Time Controls on Residential Development, 47 NYU L. R. 723

Subdivision Land Dedication: Objective and Objections, 27 Stan. L. R. 419

Democracy in New Towns: The Limits of Private Government, 36 U. Chi. L. R. 379

Dedication: Rights Under Misuser and Alienation of Lands Dedicated for Specific Municipal Purposes, 7 U. Fla. L. R. 82

Mandatory Dedication of Land by Land Developers, 26 U. Fla. L. R. 41

Survey of Florida Real Property Law, 16 U. Miami L. R. 139

No-Growth and Related Land-use Legal Problems, an Overview, 9 Urban L. R. 122

The Constitutionality of Imposing Increased Community Costs on New Suburban Residents through Subdivision Exactions, 73 Yale L. J. 1119

Suburban Growth Controls: Economic and Legal Analysis, 86 Yale L. R. 385

Subdivision Control Ordinance, 1 Current Mun. Problems 1

Urban Beautification—It's Fashionable, 1 Current Mun. Problems 435

Performance Bonding for Subdivision Improvements, 2 Current Mun. Problems 27

Open Space Acquisition, 2 Current Mun. Problems 431

Notes of Decisions

Plat act is designed and intended to inform general public, who would be purchasers of subdivision property, of extant facts concerning such property and the plat should properly be construed against developer who created it and chose words with reference to it, *Coffman* v. *James*, 177. So.2d 25 (1965)

PROPOSED AMENDMENTS TO FLOODPLAIN REGULATIONS

652.102 Definitions

Add:

(s) undue stress - in regard to selected wetlands this means more than 10% alteration of the wetlands within property boundaries.

652.106 Special exception uses within General Floodplain District

A-6 Add:

does not cause undue stress or destruction of selected wetlands.

CHAPTER 652
FLOODPLAIN REGULATION

652.101 Legislative findings and declarations. The Council finds and declares that:

(a) The Congress of the United States passed and the President signed into law the National Flood Insurance Act of 1968 [42 U.S.C. ss. 4011 *et seq.*] and the Flood Disaster Protection Act of 1973 [42 U.S.C. ss. 4001 *et seq.*] which, in recognizing the hazards from floods and the consequential losses therefrom, broadened flood insurance protection and lowered the rates for flood insurance purchased by property owners living in communities which adopt adequate floodplain ordinances with effective enforcement provisions consistent with federal standards to reduce or avoid future flood losses.

(b) The Federal Insurance Administration, a division of the United States Department of Housing and Urban Development, has promulgated regulations and prepared certain definitive maps of flood-prone areas entitled *Flood Insurance Rate Maps (FIRMs)* which delineate the floodplains herein defined, many of which are unregulated and shall be controlled as set forth hereinafter.

(c) Only development which is appropriate in light of the probability of flood damage and which represents a reasonable social and economic use of land in relation to the hazards involved shall be permitted in flood-prone areas.

History.—Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.

Note.—Former s. 601.101.

Note.—The functions vested in the Secretary of Housing and Urban Development pursuant to the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were transferred to the Director of the Federal Emergency Management Agency under §202 of Reorganization Plan No. 3 of 1978, 43 Fed. Reg. 41943, 92 Stat. 9808.

652.102 Definitions. As used in this chapter:

(a) *Administrator* means the Federal Insurance Administrator, to whom the Secretary of Housing and Urban Development has delegated the administration of the program.

(b) *applicant* means a person who submits information to the Director in support of a variance or exception.

(c) *area of special flood hazard* means the land in the floodplain within a community subject to a one percent or greater chance of flooding in a given year. The area may be designated as zones A, A0, A1 through A10 and V1 through V9 on the FIRMs.

(d) *base flood* means the flood having a one percent chance of being equaled or exceeded in any given year.

(e) *coastal high hazard area* means the area subject to high velocity waters, including hurricane wave wash or tsunamis. The area is designated on a FIRM as zone V1 through V9.

(f) *Director* means the Director of Public Works.

(g) *existing use* means a land use, except new construction or substantial improvement as herein defined.

(h) *flood* or *flooding* means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) the overflow of inland or tidal waters.

(2) the unusual and rapid accumulation or runoff of surface waters from any source.

(i) *flood elevation determination* means a determination by the Administrator of the water surface elevations of the base flood; that is, the flood level that has a one percent or greater chance of occurrence in any given year.

(j) *Flood Insurance Rate Map (FIRM)* means an official map of a community on which the Administrator has delineated both the special hazard areas and the risk premium zones

applicable to the community. For the City, FIRMs are numbered H&I-01 through H&I-13 at a scale of one inch equals two thousand feet. FIRMs exclude the Second, Third, Fourth and Fifth Urban Services Districts and certain federal and State reservations. Official copies of FIRMs shall be kept on display in the Public Works Department.

(k) *floodplain* or *flood-prone area* means a land area susceptible to being inundated by water from any source.

(l) *floodproofing* means a combination of structural and non-structural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

(m) *floodway* means the channel of a river or other watercourse and the adjacent low areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

(n) *habitable floor* means a floor usable for living purposes, which includes working, sleeping, eating, cooking or recreation, or a combination thereof. A floor used only for storage purposes is not a habitable floor.

(o) *new construction* means structures for which the start of construction (as herein defined) commenced on or after December 1, 1977.

(p) *registered professional engineer or architect* means an engineer or architect registered in Florida.

(q) *start of construction* means the first placement of permanent construction of a structure (other than a mobile home) on a site, such as the pouring of slabs or footings or any work beyond the stage of excavation. Permanent construction does not include land preparation, the as clearing, grading and filling; nor the installation of streets and/or walkways; nor excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not as part of the main structure. For a structure (other than a mobile home) without a basement or poured footings, the start of construction includes the first permanent framing or assembly of the structure or any part thereof on its piling or foundation. For mobile homes not within a mobile home park or mobile home subdivision, start of construction means the affixing of the mobile home to its permanent site. For mobile homes within mobile home parks or mobile home parks or mobile home subdivisions, start of construction is the date on which the construction of facilities for servicing the site on which the mobile home is to be affixed (including, at a minimum, the construction of streets, either final site grading or the pouring of concrete pads and installation of utilities) is completed.

(r) *substantial improvement* means a repair, reconstruction or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure either:

(1) before the improvement or repair is started; or

(2) if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, substantial improvement is considered to occur when the first alteration of a wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not include either:

(1) a project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions; or

(2) an alteration of a structure listed on the National Register of Historic Places or a State inventory of historic places.

(s) *variance* means a grant of relief by the Director from the terms of a floodplain management regulation established by or pursuant to this chapter.

History.--Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.

Note.--Former s. 601.102.

Note.--The functions vested in the Secretary of Housing and Urban Development pursuant to the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 were transferred to the Director of the Federal Emergency Management Agency under §202 of Reorganization Plan No. 3 of 1978, 43 Fed. Reg. 41943, 92 Stat. 9808.

652.103 Creation of General Floodplain District. The General Floodplain District is hereby expanded. The boundaries of the General Floodplain District shall be that territory delineated as flood hazard areas on the FIRMs having zone symbols A, A1 through A10, A0 and V1 through V9, which maps, marked *Preliminary*, are on file in the office of the Director and

are hereby adopted as the City's floodplain maps. FIRMs may be modified or republished from time to time by the Administrator and, in such cases, the modified or republished versions shall then become the official maps without further action by the Council unless the City or another person appeals the modification or republication as permitted by law.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.103.

652.104 Permitted uses within General Floodplain District. The following uses, in addition to all existing uses, shall be permitted without any permit being required hereunder within the General Floodplain District to the extent they are not prohibited by any other law:

(a) agricultural uses—general farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, forestry, sod farming and wild-crop harvesting.

(b) industrial-commercial uses—loading areas, parking areas and airport landing strips.

(c) private and public recreational uses—golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, hiking and horseback riding trails.

(d) residential uses—lawn, gardens, parking areas and play areas.

(e) non-commercial private outbuildings—greenhouses, stables, barns, storage structures, docks, boathouses and worksheds.

Nothwithstanding that any of the foregoing uses are permitted within the General Floodplain District, no use shall adversely affect the efficiency or unduly restrict the capacity of the channels or floodplains of a tributary or main stream, drainage ditch or other drainage facility or system; and, to the extent a use does so adversely affect or unduly restrict, it is prohibited.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.104.

652.105 Special exception permit required. Uses other than those specified in s. 652.104 shall be permitted within the General Floodplain District only upon application to the Director and issuance of a permit, which shall be known as a *special exception permit*. The issuance of a special exception permit does not waive the need for approval of other agencies of the Consolidated Government or Charter authorities, or the requirement of obtaining permits required by the agencies or authorities or by any other federal, State or local authority.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.105.

652.106 Special exception uses within General Floodplain District.

(a) *Applications; permits.* An application for a special exception use shall be accepted and a permit for a special exception use within the General Floodplain District shall be issued by the Director, but only if it:

(1) does not cause a significant increase in upstream or downstream flood potential.

(2) is constructed on a site reasonably free from minor flood hazards.

(3) is not prohibited by any other law and is consistent with the comprehensive plan adopted under Chapter 650.

(4) takes into account floodplain management programs in effect in neighboring areas.

(5) meets the standards and requirements of, and has been reviewed in accordance with, subsection (b).

Permits shall be required for all proposed construction and other developments, including the placement of mobile homes, within zones A, A-1 through A10, AO and V1 through V9 on the FIRMs unless a variance is granted in accordance with the provisions of this chapter. Compliance with this section must be met prior to the issuance of a building permit required under the provisions of s. 320.401; nor shall compliance with this section obviate the necessity of compliance with the Building Code or the Zoning Code.

(b) *Requirements and standards.* Upon the filing of an application for a special exception use in accordance with s. 652.107, the Director shall, before accepting an application or issuing a permit pursuant thereto:

(1) review the proposed development to assure that the necessary permits have

been received from those governmental agencies from which approval is required by federal or State law, including s. 404 of the Federal Water Pollution Control Act Amendments of 1972 [33 U.S.C. s. 1334], and require the receipt of necessary permits not yet obtained if the permits are obtainable from the appropriate governmental agencies before issuance of a special exception permit. Nothing in this paragraph shall preclude the Director from issuing a permit conditional upon receipt of other necessary permits or any other acknowledgement that all conditions for obtaining a special exception permit except receipt of other necessary permits have been met.

(2) review a permit application to determine whether, and further require that, the proposed building site will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, new construction and substantial improvements (including the placement of prefabricated buildings and mobile homes) shall:

(i) be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure.

(ii) be constructed with materials and utility equipment resistant to flood damage.

(iii) be constructed by methods and practices that minimize flood damage.

(3) review a subdivision proposal and other proposed new development to determine whether, and further require that, the proposal will be reasonably safe from flooding. If a subdivision proposal or other proposed new development is in a flood-prone area, the proposal shall be reviewed to assure that:

(i) it is consistent with the need to minimize flood damage within the flood-prone area.

(ii) all public utilities and facilities, such as sewer, gas, electrical and water systems are located and constructed to minimize or eliminate flood damage.

(iii) adequate drainage is provided to reduce exposure to flood hazards.

(4) require within flood-prone areas new and replacement water supply systems to be designed to minimize or eliminate infiltration of floodwaters into the systems.

(5) require within flood-prone areas:

(i) new and replacement sanitary sewage systems to be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.

(ii) on-site waste disposal systems to be located to avoid impairment to them or contamination from them during flooding.

(6) require that all subdivision proposals and other proposed new development greater than fifty lots or five acres, whichever is the lesser, include within the proposals base flood elevation data as taken from the FIRMs, except that, for A0 flooding zones, where base flood elevation data are not given on the FIRMs, it shall be the responsibility of the developer concerned to determine the elevation of the 100-year frequency flood to the satisfaction of the Director.

(7) require that the applicant has obtained, reviewed and reasonably utilized base flood elevation data as taken from the FIRMs (except for A0 flooding zones, where the developer's responsibility shall be as stated in paragraph (6)), as criteria for requiring that:

(i) all new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated or floodproofed to or above the base flood level.

(ii) all new construction and substantial improvements of non-residential structures have the lowest floor (including basement) elevated or floodproofed to or above the the base flood level.

(8) require that the applicant, for the purpose of the determination of applicable flood insurance risk premium rates within zones A, A1 through A10, A0 and V1 through V9 on the FIRMs:

(i) obtain the elevation (in relation to mean sea level) of the lowest habitable floor (including a habitable basement) of all new or substantially improved structures, and whether or not the structures contain a basement.

(ii) obtain, if the structure has been floodproofed, the elevation (in relation to mean sea level) to which the structure was floodproofed.

(iii) maintain a record of this information with the Director.

(9) require that the applicant provide the information necessary for the Director to notify, in riverine situations, adjacent communities and the State Coordinating Office prior to an alteration or relocation of a watercourse, with copies of the notifications to the Administrator.

(10) require that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained.

(11) require that mobile homes to be placed within zones A, A1 through A10 and A0 of FIRMs be anchored to resist flotation, collapse or lateral movement by providing over-the-top and frame ties to ground anchors. Specific requirments are that:

(i) over-the-top ties be provided at each of the four corners of the mobile home, with two additional ties for each site at intermediate locations and mobile homes less than fifty feet long requiring one additional tie for each side.

(ii) frame ties be provided at each corner of the home with five additional ties for each side at intermediate points and mobile homes less than fifty feet long requiring four additional ties for each side;

(iii) all components of the anchoring system be capable of carrying a force of four thousand eight hundred pounds.

(iv) additions to the mobile home be similarly anchored.

(12) require that an evacuation plan indicating alternative vehicular access and escape routes be filed with the Civil Defense Division, for mobile home parks and mobile home subdivisions located within zones A, A1 through A10, A0 and V1 through V9 of the FIRMs.

(13) require that new construction and substantial improvements for residential structures within zones A1 through A10 on the FIRMs have the lowest floor (including basement) elevated to or above the base flood level.

(14) require that new construction and substantial improvements of non-residential structures within zones A1 through A10 on the FIRMs:

(i) have the lowest floor (including basement) elevated to or above the base flood level; or

(ii) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(15) require that, where floodproofing is utilized for a particular structure in accordance with this section, a registered professional engineer or architect certify that the floodproofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the base flood. A record of the certificates indicating the specific elevation (in relation to mean sea level) to which the structures are floodproofed shall be maintained with the Director.

(16) require, within zones A1 through A10 on the FIRMs, for new mobile home parks and mobile home subdivisions, for expansions to existing mobile home parks and mobile home subdivisions and for existing mobile home parks and mobile home subdivisions where the repair, reconstruction or improvement of the streets, utilities and pads equals or exceeds fifty percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced, that:

(i) stands or lots are elevated on compacted fill or on pilings so that the lowest floor of the mobile home will be at or above the base flood level.

(ii) adequate surface drainage and access for a hauler are provided.

(iii) in the instance of elevation on pilings, lots are large enough to permit steps, piling foundations are placed in stable soil no more than ten feet apart and reinforcement is provided for pilings more than six feet above the ground level.

(17) require, for all mobile homes to be placed with zones A1 through A10 of the FIRMs but not into a mobile home park or mobile home subdivision, that:

(i) stands or lots are elevated on compacted fill or on piling so that the lowest floor of the mobile home will be at or above the base flood level.

(ii) adequate surface drainage and access for a hauler are provided.

(iii) in the instance of elevation on pilings, lots are large enough to permit steps, piling foundations are placed in stable soil no more than ten feet apart and reinforcement is provided for pilings more than six feet above the ground level.

(18) require, within an A0 zone on the FIRMs, that new construction and substantial improvement of a residential structure have the lowest floor (including basement) elevated or above the crown of the nearest street to or above the depth number specified on the FIRMs.

(19) require, within an A0 zone on the FIRMs, that new construction and substantial improvement of a non-residential structure:

(i) have the lowest floor (including basement) elevated to or above the base flood level; or

(ii) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(20) require that no new construction, substantial improvement or other development (including fill) shall be permitted within zones A1 through A10 of the FIRMs, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot, or such lesser amount as shall be required by the Director in specific areas to control the jeopardy of flooding, at any point within the community.

(21) require that new construction within zones V1 through V9 of the FIRMs is located landward of the reach of mean high tide and also in compliance with applicable requirements for setback.

(22) require:

(i) that new construction and substantial improvements within zones V1 through V9 of the FIRMs are elevated on adequately anchored pilings or columns and securely anchored to the piles or columns so that the lowest portion of the structural members of the lowest floor (excluding the piling or columns) is elevated to or above the base flood level.

(ii) that a registered professional engineer or architect certify that the structure is securely anchored to adequately anchored pilings or columns in order to withstand velocity waters and hurricane wave wash.

(23) require that new construction and substantial improvements within zones V1 through V9 of the FIRM have the space below the lowest floor free of obstructions or be constructed with breakaway walls intended to collapse under stress without jeopardizing the structural support of the structure so that the impact on the structure by abnormally high tides or wind-driven water is minimized. This temporarily enclosed space shall not be used for human habitation.

(24) prohibit the use of fill for structural support of buildings within zones V1 through V9 of the FIRMs.

(25) prohibit the placement of mobile homes, except in existing mobile home parks and mobile home subdivision, within zones V1 through V9 of the FIRMs.

(26) prohibit man-made alteration of sand dunes and mangrove stands within zones V1 through V9 of the FIRMs which would increase potential flood damage.

(c) *Variance from requirements and standards.* Upon the submission of a written application to the Director, a variance from the requirements of subsection (b) may be granted in accordance with the following requirements and limitations:

(1) The granting of a variance shall be generally limited to a lot size less than one-half acre. The Director shall precribe regulations requiring justification for variances with respect to lots exceeding one-half acre.

(2) A variance shall not be issued within a floodway if a significant increase in flood levels during the basic flood discharge would result.

(3) A variance may be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size [or of larger size if sufficient justification is shown in accordance with paragraph (1)] contiguous to and surrounded by lots with existing structures constructed below the base flood level in conformance with the procedures set forth in paragraphs (4), (5), (6), (7) and (8).

(4) A variance shall only be issued upon:

(i) a showing of good and sufficient cause.

(ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant.

(iii) a determination that the granting of a variance will not result in increased flood heights or additional threats to public safety or extraordinary public expense, create nuisances, cause fraud on or victimization of the public, conflict with existing local laws or be inconsistent with the comprehensive plan adopted under Chapter 650.

(5) In determining whether good and sufficient cause and extraordinary hardship exists for granting a variance, the Director shall consider the following factors:

(i) economic hardship.

(ii) aesthetic deficiencies:

(A) where the property is contiguous to and surrounded by existing or proposed structures constructed below the required first-floor elevation.

(B) where excessive height above planned or existing grade levels will result in unsightly embankments or unusually tall foundations.

(iii) environmental problems.

(iv) drainage problems.

(v) safety hazards.

(vi) destruction of historical landmarks.

(6) A variance shall be issued only upon the determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

(7) The Director shall notify the applicant in writing that:

(i) the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as twenty-five dollars for one hundred dollars of insurance coverage.

(ii) the construction below the base flood level increases risks to life and property. This notification shall be maintained with a record of variance actions as required by paragraph (8).

(8) The Director shall:

(i) maintain a record of variance actions, including justification for their issuance.

(ii) report the variances issued in his annual report to the Administrator.

(9) A variance shall be freely transferable with the land and shall not be personal to the applicant.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 80-354-351, s. 5; Ord. 83-591-400, s. 1.
Note.–Former s. 601.106.

652.107 Special exception and variance permit procedure; application; time limit; recourse upon denial.

(a) The application for a special exception use or variance permit shall contain plans in triplicate drawn to scale showing the existing and proposed nature, location, dimensions and elevation of the lot, structures and fill, and the relationship of these elements to the location of the drainageway or the ocean, and such other information as the Director may require. Each application for a variance shall further contain sufficient information to support a variance in accordance with the requirements of s. 652.106(c).

(b) The Director shall, within thirty working days of receipt of the application for a special exception use or variance permit, accept or reject the application and shall, in writing, notify the applicant of the decision and the reason for a rejection. If the application is accepted, the Director shall issue a permit for the special exception use or variance.

(c) If the special exception use or variance application is rejected, the applicant may appeal the Director's decision to the Council. He shall submit a copy of his application and all relevant documentation and exhibits together with the Director's written denial to the appropriate committee. The written appeal shall be forwarded to the Planning Department for review; the Department shall file its recommendation with the committee within thirty days. The committee shall make its recommendation to the Council within thirty days of the receipt of the Department's recommendation. The decision of the Council shall be final.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.107.

652.108 Exemption from chapter of land bordering and lying beneath navigable waters. The provisions of this chapter shall not apply to the filling, excavation or alteration of land located in or bordering on navigable waters of the State, if these activities are regulated by Chapter 253, Florida Statutes, by Chapter 714 or by other laws relating to navigable waters. However, approval for filling and excavation or alteration of land shall not preclude the application of this chapter to any activities, other than filling, excavation or alteration of land, otherwise subject to this chapter.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.108.

652.109 Compliance and prohibition.

(a) No land shall hereafter be used and no structure shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this chapter and other applicable regulations.

(b) It shall be unlawful for a person to make a false statement or supply false information on an application required to be filed pursuant to this chapter.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.109.

652.110 Penalties and remedies. Violation of a provision of this chapter shall constitute a class D offense. Nothing herein contained shall prevent the City from taking such other lawful action, including resort to equitable action, as is necessary to prevent or remedy a violation hereof. Each day a violation continues shall constitute a separate offense.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.110.

652.111 Abrogation and greater restrictions. It is not intended by this chapter to repeal, abrogate or impair existing easements, covenants or deed restrictions. However, where this chapter imposes greater restrictions, the provisions of this chapter shall prevail.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.111.

652.112 Interpretation. In interpretation and application, the provisions of this chapter shall be held to be minimum requirements and shall be liberally construed to support and sustain the policy declared in s. 652.101, and shall not be deemed a limitation or repeal of any other powers granted by State statute. They shall further be construed in view of the local condition that any non-ocean-front flooding is likely to consist of slowly rising waters, rather than rushing waters.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.112.

652.113 Warning and disclaimer of liability. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes. Larger floods may occur or flood heights may be increased by man-made or natural causes, such as bridge openings restricted by debris. This chapter does not imply that areas outside the General Floodplain District boundaries or land uses permitted within the district will be free from flooding or flood damage. This chapter shall not create liability on the part of the City or an officer or employee thereof for flood damage that results from reliance on this chapter or an administrative decision lawfully made hereunder.

History.–Ord. 74-1145-675, s. 1; Ord. 77-419-490, s. 1; Ord. 83-591-400, s. 1.
Note.–Former s. 601.113.

Constitutional and Statutory Provisions

U.S.C.A.:
Title 42, §§4001 *et seq.*, Flood Disaster Protection Act of 1973
Title 42, §§4011 *et seq.*, National Flood Insurance Act of 1968
Title 42, §4022. State and local land use controls
Title 42, §4023. Properties in violation of State and local law
Title 42, §4101. Identification of flood-prone areas
Title 42, §4104. Flood elevation determinations
Title 42, §4104a. Notification of purchaser or lessee of special flood hazards in area of location of improved real estate or mobile home securing loan; regulations prescribing procedures
Fla. Const.:
Art. II, §7. Natural resources and scenic beauty.
F.S.A.:
§7.16 Duval County.
§§163.3161–163.3211 Local Government Comprehensive Planning Act of 1975
§252.38 Emergency management powers of political subdivisions.

Charter Provisions

Art. 2. General and Urban Services Districts
Art. 21. Area planning and land use regulation

Administrative Law Provisions

C.F.R.:
Title 12, §§522.1 *et seq.*, §§545.1 *et seq.*, §§563.1 *et seq.* Federal Home Loan Bank Board requirements
Title 13, §§309.0 *et seq.* Economic Development Administration requirements
Title 24, §§1909.2 Program description
Title 24, §§1909.3 Emergency program

Title 24, §§1909.21–1909.24 Prerequisites for eligibility
Title 24, §§1910.1 *et seq.* Criteria for land management and use
Title 24, §§1911.1 *et seq.* Coverage and rates
Title 24, §§1912.1 *et seq.* Issuance of policies and adjustment of claims
Title 24, §§1914.1 *et seq.*, §§1915.1 *et seq.* Area identification
Title 24, §§1917.1 *et seq.*, §§1918.1 *et seq.* Elevation determinations, applicable procedures
Title 24, §§1920.1 *et seq.* Map correction procedu...
Title 24, §§1925.1 *et seq.* State-owned properties, exemption under self-insurance plan
Fla. Admin. Code:
Ch. 27F-1 Land planning (generally)

Cross References

Civil Defense Division, see §§31.701–31.703
Director of Public Works, see §§32.101–32.102
Emergency continuity of government, see Ch. 114
Class D offense, see §632.101(a)(4)
Subdivision regulations, see Ch. 554
Zoning Code, see Ch. 656
Disaster preparedness, see Ch. 674
Regulations pertaining to dredging and filling of submerged lands, see Ch. 714

Library References

McQuillin:
§1.70. Planning.
§1.71. —Modern.
§1.73. —Scope.
Shepard's:
Drainage and Flood Control, §12
Drainage and Flood Control, §18
Drainage and Flood Control, §19
Drainage and Flood Control, §20
Drainage and Flood Control, §22

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GUIDELINES AND POLICIES FOR IMPLEMENTATION

GUIDELINES AND IMPLEMENTATION POLICIES

Understanding New Policies

The major task in assuring the implementation of new policies and proposals will be the familiarity of these new proposals by the staff that will be involved.

The new proposals for wetland protection should not involve making major changes in the present procedure by the staff that is involved in implementation. The staff will review projects and continue with the established development processes, adjusting this process when it is necessary to incorporate new revisions made in regulations and policies that affect wetlands. For example, if revisions are made in the subdivision regulations requiring wetlands to be included on site review plans, staff will be required to check site plans to be certain wetland areas are indicated on the sketch plans and the use of these areas are in accordance with newly adopted guidelines and best management practices.

The basic strategy for implementation will be for the departments involved to be aware of the new regulations and how these will affect wetland use as it relates to their particular function in the process.

The implementation strategy will be uncomplicated in

keeping with the design of new policies on wetland protection. The basic strategies are as follows:

(1) Have all applicable departments be aware of the changes and additions to wetland protection.

(2) Have departments meet and discuss how these changes will affect their present operations.

(3) Have affected departments redesign, where necessary, procedures so they will incorporate the new policies.

Other Implementation Measures:
Revisions to the Conservation
Element of the 2005 Comprehensive Plan

This particular strategy, the use of the Comprehensive Plan as a guide, can be a very adaptable strategy for wetland protection.

It is a requirement in the City Ordinances that activities regulated by these ordinances not be inconsistant with the local Comprehensive Plan. This should have positive impacts on ordinances that affect wetland preservation such as regulations on dredging and filling and subdivision design.

City Ordinance No. 650.208 suggests the legal status of the Comprehensive Plan: "All development undertaken and all action taken in regard to development orders by an executive department or an independent agency in regard to land covered by the Comprehensive Plan shall be consistant with the plan as adopted. No executive department or independent agency shall approve, permit or take action, whether by itself or by a person subject to its regulation, control or supervision under any law or official regulation, when that action is or would be inconsistant with the Comprehensive Plan."

This consistancy requirement is one of the major reasons the Comprehensive Plan will be one of the prime strategies used in the design of local wetland protection.

The Conservation Element of the 2005 Comprehensive Plan suggests numerous objectives and policies for the protection of environmentally sensitive areas. Wetlands, both freshwater and saltmarsh (tidal wetlands) are included under the sensative areas designation. The 2005 Plan specifically

outlines strategies that should be undertaken in an effort to protect these areas.

This element of the 2005 Plan suggests numerous objectives for wetland protection. In the update of this element, not only will objectives for providing protection to wetlands be included, but recommendations on how these objectives will be achieved will also be included. Design plans for protection strategies and management plans for many of these environmentally sensative areas will be included as part of the 2005 Plan update. Recommendations for development in and adjacent to wetland areas will be incorporated. Not only will suitable activites for these areas be suggested, but policies on achieving them will also be incorporated.

The 2005 Plan is presently undergoing the required five year update. As part of this update, another one of the strategies in regard to wetland protection will be to revise the language of the 2005 Plan, making the policies and stragegies suggested more to the point. A list of best management practices will be included and will be the guidelines that will be followed in determining the land use in and adjacent to wetland areas. This will allow the 2010 Plan to be a more useable document and not just a document of reference with little applicability.

The intent will be not just to use the updated 2005 Plan as a medium to suggest policies, but to actually design useable policies and strategies that can be followed in making present and future land use decisions regarding the protection of wetlands.

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